DRINKING WATER SURVEILLANCE PROGRAM

CAMBRIDGE WELL SUPPLY

REPORT FOR 1991 AND 1992

Ontario

1991/1992 District Contacts for West Central Ontario

District contacts	DWSP study
Lee Van Biesbrouck (416) 521-7593 Hamilton District Office	Cayuga Delhi Dunnville Haldimand-Norfolk Hamilton Port Dover Port Rowan Simcoe
Alison Braith Waite/ Robert Slattery (905) 732-0816 (Ext 231/234) Welland District Office	Fort Erie Grimsby Niagara Falls Port Colborne St. Catharines Welland
Jeff Taylor (519) 622-8121 Cambridge District Office	Brantford Cambridge Elmira Guelph Kitchener Kitchener Mannheim Ohsweken Orangeville Waterloo

ISSN 1195-1354

CAMBRIDGE WELL SUPPLY

DRINKING WATER SURVEILLANCE PROGRAM

REPORT FOR 1991 AND 1992

MAY 1994

Cette publication technique
n'est disponible qu'en anglais.

PIBS 3035

EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

CAMBRIDGE WELL SUPPLY
1991 AND 1992 REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

The Cambridge well supply has a groundwater source containing 22 wells in numerous aquifers. Iron sequestering is practiced at 2 wells. Disinfection is the only other treatment provided. The combined system has a maximum pumping capacity of 63 x 1000 m^3/day and is operated by the Regional Municipality of Kitchener Waterloo. The Cambridge well supply serves a population of approximately 77,800.

Raw water at three wells and treated water from one reservoir and one tower was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

Table A is a summary of all results by group.

No known health related guidelines were exceeded.

Due to the many wells supplying this water system and the relatively few sample locations on DWSP, this report does not provide a complete picture of the drinking water quality.

The Cambridge well supply, for the sample years 1991 and 1992, produced acceptable quality water. No samples were taken in the distribution system for this sampling period.

TABLE A
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	WELL G3 RAW TESTS	POSITIVE	%POSITIVE	WELL P11 RAW TESTS	POSITIVE	%POSITIVE	WELL P15 RAW TESTS	POSITIVE	%POSITIVE	RESERVOIR ST ANDREW TOWER TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	42	12	28	33	1	3	3	0	0	14	2	14
CHEMISTRY (FIELD)	30	30	100	22	22	100	4	4	100	75	63	84
CHEMISTRY (LABORATORY)	354	290	81	263	215	81	46	40	86	353	278	78
METALS	360	185	51	264	102	38	48	20	41	360	173	48
CHLOROAROMATICS	168	0	0	112	0	0	28	0	0	140	0	0
CHLOROPHENOLS	6	0	0	6	0	0				6	0	0
PESTICIDES AND PCB	384	0	0	258	0	0	69	0	0	338	0	0
PHENOLICS	15	0	0	11	0	0	2	1	50	15	1	6
POLYAROMATIC HYDROCARBONS	135	0	0	101	0	0				101	0	0
SPECIFIC PESTICIDES	16	0	0	16	0	0				16	0	0
VOLATILES	443	53	11	321	0	0	62	0	0	443	104	23
RADIONUCLIDES	7	1	14							7	2	28
TOTAL	1,960	571		1,407	340		262	65		1,868	623	

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	RESERVOIR RAHMANS TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	13	4	30
CHEMISTRY (FIELD)	46	31	67
CHEMISTRY (LABORATORY)	336	280	83
METALS	336	142	42
CHLOROAROMATICS	154	0	0
CHLOROPHENOLS	6	0	0
PESTICIDES AND PCB	362	0	0
PHENOLICS	14	2	14
POLYAROMATIC HYDROCARBONS	67	0	0
SPECIFIC PESTICIDES	16	0	0
VOLATILES	412	0	0
TOTAL	1,762	459	

DRINKING WATER SURVEILLANCE PROGRAM

CAMBRIDGE WELL SUPPLY
1991 AND 1992 REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

Appendix A has a full description of the DWSP.

The DWSP was initiated for the Cambridge well supply in January 1991. This is the first published DWSP report.

PLANT DESCRIPTION

The Cambridge well supply has a groundwater source containing 22 wells in numerous aquifers. Iron sequestering is practiced at 2 wells. Disinfection is the only other treatment provided. The combined system has a maximum pumping capacity of 63 x 1000 m^3/day and is operated by the Regional Municipality of Kitchener Waterloo. The Cambridge well supply serves a population of approximately 77,800.

The average daily pumping rate was 41 x 1000 m^3/day.

General plant information is presented in Table 1.

SAMPLING AND ANALYSES

Stringent DWSP sampling protocols were followed to ensure that all samples were collected in a uniform manner (see Appendix B).

Sample lines at the wells and reservoirs were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

Municipal operating personnel routinely analyzed parameters for process control (see Table 2 if data is provided).

At all distribution system locations, two types of samples were obtained, a standing and a free flow. The standing sample consisted

of water that had been in the household plumbing and service connection for a minimum of six hours. These samples were used to make an assessment of the change in the levels of inorganic compounds and metals due to leaching from, or deposition on, the plumbing system. The only analyses carried out on the standing samples, therefore, were laboratory chemistry and metals. The free flow sample represented fresh water from the distribution system main, since the sample tap was flushed for five minutes prior to sampling.

Raw water from three wells and treated water from a reservoir and a tower was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP database as submitted by plant personnel.

Table 3 contains information on delay time between the raw and treated water sampling, flow rate, and treatment chemical dosages.

Table 4 is a summary of all results by parameter and by water type. If a parameter was not detected, the total number of negative sample results is given. In contrast, if a parameter was detected at any location, the detailed results for all samples are provided.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment and Energy laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on Tables 4 and 5. Parameters are listed alphabetically within each scan.

DISCUSSION

GENERAL

Water quality was judged by comparison with the Ontario Drinking Water Objectives publication (ODWOs). When an Ontario Drinking Water Objective (ODWO) was not available, guidelines/limits from other agencies were used. These guidelines were obtained from the Parameter Listing System database.

IN REPORTS FOR GROUNDWATER SUPPLIES WHERE:
- **TREATMENT CAN BE LIMITED TO DISINFECTION;**
- **MANY WELLS CAN FEED INTO THE DISTRIBUTION SYSTEM INDEPENDENTLY; AND**
- **TREATED SAMPLES, WHEN AVAILABLE, ARE TAKEN FROM RESERVOIRS;**

THIS SECTION WILL DISCUSS:
- **RESULTS FROM RAW, TREATED, AND DISTRIBUTED WATERS;**
- **THOSE PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES; AND**
- **POSITIVE ORGANIC PARAMETERS DETECTED.**

In this report comments are combined for all sample locations for each parameter discussed. Due to the many wells supplying this water system and the relatively few sample locations on DWSP, this report does not provide a complete picture of the drinking water quality.

BACTERIOLOGICAL

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. Routine monitoring programs usually require that multiple samples be collected in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Standard plate count was the only bacteriological analysis conducted on the treated and distributed water. No results were above the guideline.

INORGANIC & PHYSICAL

CHEMISTRY (LABORATORY)

Calcium exceeded the European Economic Community Aesthetic Guideline Level of 100 mg/L in 11 of 14 treated water samples at one tower with a maximum reported value of 117.1 mg/L.

Colour in drinking water may be due to the presence of natural or synthetic substances as well as certain metallic ions. Colour is measured in Hazen units (HZU).

Colour exceeded the ODWO Aesthetic Objective of 5 HZU in 1 of 14 treated water samples at one reservoir with a maximum reported value of 6.0 HZU.

Elevated conductivity is often associated with high hardness levels.

Conductivity exceeded the European Economic Community Aesthetic Guideline Level of 400 umho/cm in all 29 treated water samples with a maximum reported value of 1,218 umho/cm.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and possess a tendency to form scale deposits and result in excessive soap consumption.

Hardness exceeded the ODWO Recommended Operational Guideline of 80-100 mg/L and also exceeded 200 mg/L in all 28 treated water samples with a maximum reported value of 448 mg/L.

Magnesium exceeded the European Economic Community Aesthetic Guideline Level of 30.0 mg/L in 21 of 28 treated water samples with a maximum reported value of 33.3 mg/L.

The European Economic Community has an Aesthetic Guideline Level of 0.05 mg/L for total ammonium.

Total ammonium exceeded the European Economic Community Aesthetic Guideline Level of 0.05 mg/L in 2 of 30 treated water samples with a maximum reported value of 0.14 mg/L.

Dissolved solids (residue filtrate from Table 4) exceeded the ODWO Aesthetic Objective of 500 mg/L in 15 of 29 treated water samples with a maximum reported value of 826 mg/L.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of turbidity is its interference with disinfection in the treatment plant and the maintenance of a chlorine residual. The ODWO Maximum Acceptable Concentration for turbidity is 1.0 Formazin Turbidity Unit (FTU) and applies to the water leaving the treatment facility.

Turbidity exceeded the ODWO Maximum Acceptable Concentration of 1.0 FTU in 6 of 14 treated water samples at one reservoir with a maximum reported value of 2.7 FTU. The more reliable field turbidity results were not reported. In ground water samples, turbidity can increase if the samples are not analyzed immediately in the field. This is frequently caused by precipitating iron but

can also be due to precipates formed from sulphides or calcium. The Municipality was advised of the situation.

METALS

Iron exceeded the ODWO Aesthetic Objective of 300 ug/L in 3 of 14 treated water samples at one reservoir with a maximum reported value of 610 ug/L.

Manganese, in high concentrations, can contribute to laundry staining and undesirable tastes.

Manganese exceeded the ODWO Aesthetic Objective of 50 ug/L in 3 of 14 treated water samples at one reservoir with a maximum reported value of 78.0 ug/L.

ORGANIC

CHLOROAROMATICS

The results of the chloroaromatic scan showed that none were detected.

CHLOROPHENOLS

The results of the chlorophenol scan showed that none were detected.

PESTICIDES AND PCB

The results of the pesticide and PCB scan showed that none were detected above trace levels. Atrazine, at trace levels, was detected in one well and in the tower.

PHENOLICS

Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes. The ODWOs have been revised to replace the phenolic aesthetic objective with objectives for specific phenols.

Phenolics were found at positive levels in 2 of the 29 treated water samples analyzed. The maximum observed level was 1.6 ug/L.

POLYAROMATIC HYDROCARBONS

The results of the polyaromatic hydrocarbon scan showed that none were detected.

SPECIFIC PESTICIDES

The results of the specific pesticide scan showed that none were detected.

VOLATILES

The detection of benzene, ethylbenzene, toluene and xylenes at low, trace levels may be a laboratory artifact derived from the analytical methodology. Trace levels of styrene are considered to be laboratory artifacts resulting from the sample shipping containers.

1,1,1-Trichloroethane was found at positive levels in all 15 raw well water samples and all 15 treated water samples from the tower which is supplied by this well. The maximum observed level was 4.6 ug/L. This was below the United States Environmental Protection Agency Maximum Contaminant Level of 200 ug/L.

Trichloroethylene was found at positive levels in all 15 raw well water samples and all 15 treated water samples from the tower which is supplied by this well. The maximum observed level was 9.2 ug/L. This was below the ODWO Maximum Acceptable Concentration of 50 ug/L.

Tetrachloroethylene was found at positive levels in all 15 raw well water samples and all 15 treated water samples from the tower which is supplied by this well. The maximum observed level was 1.1 ug/L. This was below the ODWO Health Related Guidance Value of 65 ug/L.

Cis 1,2-dichloroethylene was added to the volatile organic scan by the MOEE laboratory in November 1991. Prior to this date the presence of cis 1,2-dichloroethylene was reported in a note attached to the laboratory results and were therefore not included in the DWSP data base. These results are listed below.

Sample	Cambridge Well Supply	
Date	Well G3 Raw	St Andrews Tower
Jan 1991	1.90 ug/L	1.80 ug/L
Feb 1991	1.80 ug/L	1.80 ug/L
Mar 1991	1.80 ug/L	1.80 ug/L
Apr 1991	1.65 ug/L	1.70 ug/L
May 1991	1.70 ug/L	1.75 ug/l
Jun 1991	1.70 ug/L	1.70 ug/L
Jul 1991	1.70 ug/L	1.70 ug/L
Aug 1991	1.75 ug/L	1.70 ug/L
Sep 1991	1.70 ug/L	1.60 ug/L
Oct 1991	1.80 ug/L	1.60 ug/L

Cis 1,2-dichloroethylene was found, after November 1991, at positive levels in all 5 raw well water samples and all 5 treated water samples from the tower which is supplied by this well. The

maximum observed level was 1.9 ug/L. This was below the United States Environmental Protection Agency Maximum Contaminant Level of 70 ug/L.

1,1-Dichloroethylene and 1,2-dichloroethane were detected at trace levels in almost all raw well water samples and all treated water samples from the tower which is supplied by this well.

Trihalomethanes (THMs) are produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of chloroform, chlorodibromomethane and dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. Only total THM results are discussed. Starting in 1991, samples from the distribution system were quenched with sodium thiosulphate to stop the further production of THMs in the sample bottle. This provided a more representative estimation of the THMs consumed in tap water.

Total trihalomethanes were found at positive levels in 11 of 29 treated water samples analyzed . The maximum observed level was 28.5 ug/L. This was below the ODWO Maximum Acceptable Concentration of 350 ug/L.

RADIOLOGICAL

RADIONUCLIDES

There are more than 200 radionuclides, some of which occur naturally and others which originate from the activities of society. The radionuclides currently of greater interest from a health view-point are tritium, strontium-90, iodine-131, cesium-137 and radium-226. The gross beta and gross alpha determinations are suitable for preliminary screening except for tritium which must be measured separately. Radionuclides are measured in becquerels per litre (Bq/L). No results were above the available guidelines.

CONCLUSIONS

Turbidity exceeded the ODWO Maximum Acceptable Concentration in 4 treated water samples. The more reliable field turbidity results were not reported. In well water samples not analyzed immediately, turbidity can increase due to the natural precipitation of iron and other minerals. The Municipality was advised of the situation.

No other known health related guidelines were exceeded.

Due to the many wells supplying this water system and the relatively few sample locations on DWSP, this report does not provide a complete picture of the drinking water quality.

The Cambridge well supply, for the sample years 1991 and 1992, produced acceptable quality water. No samples were taken in the distribution system for this sampling period.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM

PLANT GENERAL REPORT

PLANT NAME:	CAMBRIDGE WELL SUPPLY
WORKS #:	220000166
UTM #:	-
DISTRICT:	CAMBRIDGE
REGION:	WEST CENTRAL
DISTRICT OFFICER:	J. TAYLOR
SUPERINTENDENT:	BRIAN PETT
ADDRESS:	2069 OTTAWA STREET SOUTH KITCHENER, ONTARIO N2E 3K3 519-571-6204
MUNICIPALITY:	WATERLOO REGION
AUTHORITY:	MUNICIPAL

SUPPLY INFORMATION

TOTAL NUMBER OF WELLS: 22
MAXIMUM PUMPING CAPACITY: 63.000 (X 1000 M3/DAY)

MUNICIPALITY	POPULATION
CAMBRIDGE	77,843

KEY TO TABLE 4 and 5

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
2. Interim Maximum Acceptable Concentration (IMAC)
3. Aesthetic Objective (AO)
3*. AO for Total Xylenes
4. Recommended Operational Guideline
5. Health Related Guidance Value

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurement Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!48	No Data: Sample Age Exceeded 48 Hours
!AR	No Data: No Numeric Results
!AW	No Data: Analysis Withdrawn
!BT	No Data: Sample Broken In Transit
!CS	No Data: Contamination Suspected
!EF	No Data: Laboratory Equipment Failure
!IR	No Data: Insufficient Sample
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!PE	No Data: Procedure Error: Sample Discarded
!PR	No Data: Preservative Required
!QU	No Data: Quality Control Unacceptable
!RE	No Data: Received Empty
!RO	No Data: No Numeric Results
!SM	No Data: Sample Missing
!SS	No Data: Sample Improperly Preserved
!U	No Data: Sample Unsuitable For Analysis
!UB	No Data: Bottle Broken
!UN	No Data: Result Unreliable

!UR	No Data: Unpreserved Sample Required
A	Approximate Value
A3C	Approximate, Total Count Exceeded 300 Colonies
A>	Approximate Value, Exceeded Normal Range
APS	Additional Peak, Less Than, Not Priority Pollutant
ARO	Additional Information In Laboratory Report
CRO	Calculated Result Only
NAF	Not All Required Tests Found
RID	Ioncal Calculated on Incomplete Data Set
RMP	P and M-Xylene Not Separated
RRR	Result Obtained by Repeat Analysis
RRV	Rerun Verification
SFA	Sample Filtered: Filtrate Analyzed
SIL	Sample Incorrectly Labelled
SPS	Several Peaks, Small, Not Priority Pollutant
U48	Unreliable: Sample Age Exceeded 48 Hours
UAL	Unreliable: Sample Age Exceeded Limit
UAU	Unreliable: Sample Age Unknown
UCS	Unreliable: Contamination Suspected
WSD	Wrong Sample Description On Bottle

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
BACTERIOLOGICAL					
FECAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 0 (A1)	
1991 JAN	0	0	.	.	.
1991 FEB	0	0	.	.	.
1991 MAR	0	0	.	.	.
1991 APR	0	0	.	.	.
1991 MAY	0	0	.	.	.
1991 JUN	0	0	.	.	.
1991 JUL	0	0	.	.	.
1991 AUG	0	0	.	.	.
1991 SEP	0	0	.	.	.
1991 OCT	0	0	.	.	.
1991 NOV	0	.	.	.	.
1992 JAN	0	.	.	.	.
1992 APR	0	.	0	.	.
1992 JUL	0	0	.	.	.
STANDRD PLATE CNT MF (CT/ML)		DET'N LIMIT = 0		GUIDELINE = 500 (A3)	
1991 JAN	.	.	.	3 <=>	11
1991 FEB	.	.	.	3 <=>	0 <=>
1991 MAR	.	.	.	1 <=>	1
1991 APR	.	.	.	2 <=>	1 <=>
1991 MAY	.	.	.	0 <=>	0 <=>
1991 JUN	.	.	.	3 <=>	1 <=>
1991 JUL	.	.	.	2 <=>	1 <=>
1991 AUG	.	.	.	2 <=>	0 <=>
1991 SEP	.	.	.	13	6 <=>
1991 OCT	.	.	.	2 <=>	2 <=>
1991 NOV	.	.	.	0 <=>	3 <=>
1992 JAN	.	.	.	4 <=>	.
1992 APR	.	.	.	1 <=>	270
1992 JUL	.	.	.	12	23

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
BACTERIOLOGICAL					
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 5/100ML (A1)
1991 JAN	1	0	.	.	.
1991 FEB	0	0	.	.	.
1991 MAR	0	0	.	.	.
1991 APR	1	0	.	.	.
1991 MAY	0	0	.	.	.
1991 JUN	0	0	.	.	.
1991 JUL	3	0	.	.	.
1991 AUG	1	0	.	.	.
1991 SEP	0	0	.	.	.
1991 OCT	0	0	.	.	.
1991 NOV	0	.	.	.	.
1992 JAN	0	.	.	.	.
1992 APR	0	.	0	.	.
1992 JUL	0	0	.	.	.
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = N/A
1991 JAN	1	0	.	.	.
1991 FEB	0	0	.	.	.
1991 MAR	0	0	.	.	.
1991 APR	2	0	.	.	.
1991 MAY	0	0	.	.	.
1991 JUN	1	0	.	.	.
1991 JUL	2	0	.	.	.
1991 AUG	1	0	.	.	.
1991 SEP	0	0	.	.	.
1991 OCT	1	0	.	.	.
1991 NOV	3	.	.	.	.
1992 JAN	0	.	.	.	.
1992 APR	0	.	0	.	.
1992 JUL	8	2	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (FIELD)					
FLD CHLORINE (COMB) (MG/L)			DET'N LIMIT = 0		GUIDELINE = N/A
1991 JAN	.	.	.	.100	.000
1991 FEB	.	.	.	.200	.000
1991 MAR	.	.	.	.100	.
1991 APR	.	.	.	.000	.000
1991 MAY	.	.	.	.000	.000
1991 JUN	.	.	.	.000	.
1991 JUL	.	.	.	.100	.000
1991 AUG	.	.	.	.200	.
1991 SEP	.	.	.	.200	.
1991 OCT	.	.	.	.000	.
1991 NOV	.	.	.	.100	.
1992 JAN	.	.	.	.200	.
1992 APR	.	.	.	.000	.
1992 JUL	.	.	.	.050	.
1992 OCT	.	.	.	.850	.010
FLD CHLORINE FREE (MG/L)			DET'N LIMIT = 0		GUIDELINE = N/A
1991 JAN	.	.	.	.000	.000
1991 FEB	.	.	.	.000	.000
1991 MAR	.	.	.	.100	.
1991 APR	.	.	.	.010	.000
1991 MAY	.	.	.	.000	.000
1991 JUN	.	.	.	.100	.
1991 JUL	.	.	.	.100	.000
1991 AUG	.	.	.	.000	.
1991 SEP	.	.	.	.000	.
1991 OCT	.	.	.	.030	.
1991 NOV	.	.	.	.200	.
1992 JAN	.	.	.	.000	.
1992 APR	.	.	.	.120	.
1992 JUL	.	.	.	.050	.
1992 OCT	.	.	.	2.700	.020

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (FIELD)					
FLD CHLORINE (TOTAL) (MG/L)			DET'N LIMIT = 0		GUIDELINE = N/A
1991 JAN	.	.	.	.100	.000
1991 FEB	.	.	.	.200	.000
1991 MAR	.	.	.	.200	.
1991 APR	.	.	.	.010	.000
1991 MAY	.	.	.	.000	.000
1991 JUN	.	.	.	.100	.
1991 JUL	.	.	.	.100	.000
1991 AUG	.	.	.	.200	.
1991 SEP	.	.	.	.200	.
1991 OCT	.	.	.	.030	.
1991 NOV	.	.	.	.300	.
1992 JAN	.	.	.	.200	.
1992 APR	.	.	.	.120	.
1992 JUL	.	.	.	.100	.
1992 OCT	.	.	.	3.550	.030
FLD PH (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5 (A4)
1991 JAN	7.100	7.200	.	7.100	7.300
1991 FEB	7.400	7.400	.	7.200	7.400
1991 MAR	7.200	7.400	.	7.200	7.400
1991 APR	7.200	7.400	.	7.200	7.300
1991 MAY	7.200	7.400	.	7.200	7.400
1991 JUN	7.200	7.400	.	7.200	7.400
1991 JUL	7.400	7.200	.	7.200	7.200
1991 AUG	7.200	7.200	.	7.200	7.400
1991 SEP	7.400	7.200	.	7.400	7.400
1991 OCT	7.400	7.400	.	7.200	7.400
1991 NOV	7.200	.	.	7.400	7.400
1992 JAN	7.400	.	.	7.200	.
1992 APR	7.100	.	7.400	7.000	7.200
1992 JUL	7.400	7.400	.	7.400	7.400
1992 OCT	7.000	.	7.300	7.000	7.200

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (FIELD)					
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A3)
1991 JAN	8.500	8.000	.	7.500	6.500
1991 FEB	12.000	10.000	.	9.000	9.000
1991 MAR	11.000	9.500	.	8.000	8.000
1991 APR	10.000	9.000	.	10.000	9.000
1991 MAY	11.000	9.000	.	12.000	9.000
1991 JUN	11.000	9.000	.	13.000	9.000
1991 JUL	11.000	10.000	.	14.000	10.000
1991 AUG	11.000	9.500	.	14.000	10.000
1991 SEP	10.800	9.500	.	14.600	9.500
1991 OCT	11.000	9.000	.	11.000	9.000
1991 NOV	10.500	.	.	9.700	8.700
1992 JAN	10.500	.	.	7.500	.
1992 APR	11.000	.	9.000	10.000	10.000
1992 OCT	13.000	.	8.200	11.200	9.500
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)
1992 JUL	.100	.480	.	.150	.870

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
ALKALINITY (MG/L)			DET'N LIMIT = 0.2		GUIDELINE = 30-500 (A4)
1991 JAN	283.000	279.200	.	276.700	270.700
1991 FEB	275.900	279.900	.	276.300	269.000
1991 MAR	278.700	273.900	.	278.400	238.100
1991 APR	211.500	241.500	.	210.500	268.000
1991 MAY	279.400	266.800	.	279.700	242.500
1991 JUN	216.200	268.700	.	216.000	253.800
1991 JUL	273.800	286.400	.	273.400	266.800
1991 AUG	274.500	286.500	.	274.600	264.500
1991 SEP	266.800	274.900	.	255.200	271.000
1991 OCT	268.000	284.400	.	267.100	259.600
1991 NOV	265.500	.	.	267.600	252.700
1992 JAN	209.000	.	.	203.000	.
1992 APR	262.600	.	247.200	263.000	228.300
1992 JUL	261.800	262.300	.	261.000	280.900
1992 OCT	271.300	.	284.500	274.100	271.600
CALCIUM (MG/L)			DET'N LIMIT = 0.20		GUIDELINE = 100 (F2)
1991 JAN	112.400	86.400	.	113.100	92.700
1991 FEB	113.700	85.400	.	117.100	92.000
1991 MAR	105.200	87.000	.	105.900	81.900
1991 APR	65.000	70.600	.	79.800	75.200
1991 MAY	107.000	75.700	.	111.600	73.800
1991 JUN	62.600	74.400	.	115	77.600
1991 JUL	112.000	86.600	.	114.000	87.200
1991 AUG	112.000	84.000	.	112.300	85.400
1991 SEP	110.000	79.000	.	95.000	89.000
1991 OCT	112.000	88.200	.	110.000	83.600
1991 NOV	111.900	.	.	112.200	83.500
1992 JAN	81.200	.	.	75.400	.
1992 APR	107.800	.	74.050	108.500	66.250
1992 JUL	112.250	82.450	.	110.650	90.850
1992 OCT	108.000	.	93.800	112.000	82.200
CYANIDE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 0.2 (A1)
50 SAMPLES	BDL	BDL	.	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
CHLORIDE (MG/L)			DET'N LIMIT = 0.20		GUIDELINE = 250 (A3)
1991 JAN	161.000	11.500	.	151.000	45.700
1991 FEB	!IR	11.900	.	!IR	36.300
1991 MAR	170.000	12.000	.	169.000	28.600
1991 APR	145.000	35.300	.	168.000	11.600
1991 MAY	169.000	13.500	.	178.000	37.000
1991 JUN	154.000	12.500	.	173.000	37.900
1991 JUL	167.000	12.800	.	172.000	35.700
1991 AUG	178.000	14.200	.	173.000	40.600
1991 SEP	181.000	13.700	.	174.000	38.500
1991 OCT	169.000	13.000	.	164.000	36.300
1991 NOV	166.000	.	.	162.000	41.900
1992 JAN	168.000	.	.	166.000	.
1992 APR	157.000	.	46.700	152.000	37.400
1992 JUL	162.000	8.000	.	160.000	20.300
1992 OCT	178.000	.	98.600	174.000	32.600
COLOUR (HZU)			DET'N LIMIT = 0.50		GUIDELINE = 5 (A3)
1991 JAN	3.000	2.500	.	2.500	2.000 <T
1991 FEB	3.000	3.000	.	4.000	4.500
1991 MAR	3.500	3.000	.	3.500	2.000 <T
1991 APR	3.500	2.500	.	3.500	6.000
1991 MAY	3.500	2.500	.	3.000	2.500
1991 JUN	4.000	3.000	.	3.000	3.000
1991 JUL	4.000	3.000	.	3.500	4.000
1991 AUG	4.000	3.000	.	3.000	5.000
1991 SEP	3.500	2.500	.	2.500	3.500
1991 OCT	4.000	3.500	.	3.000	3.500
1991 NOV	3.000	.	.	2.000	3.500
1992 JAN	3.000	.	.	2.000	.
1992 APR	2.500	.	BDL	1.500	BDL
1992 JUL	4.500	3.000	.	4.000	3.000
1992 OCT	2.000	.	1.500	2.000	1.500

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1.0		GUIDELINE = 400 (F2)
1991 JAN	1163	590	.	1145	684
1991 FEB	1167	591	.	1174	654
1991 MAR	1152	565	.	1150	571
1991 APR	1181	652	.	1174	586
1991 MAY	1123	577	.	1125	637
1991 JUN	1212	619	.	1218	687
1991 JUL	1158	592	.	1160	656
1991 AUG	1173	601	.	1176	670
1991 SEP	1205	619	.	1189	691
1991 OCT	1196	612	.	1194	672
1991 NOV	1176	.	.	1179	666
1992 JAN	1162	.	.	1191	.
1992 APR	1091	.	660	1101	656
1992 JUL	1185	575	.	1188	647
1992 OCT	1128	.	904	1126	642
DISS ORG CARBON (MG/L)			DET'N LIMIT = 0.10		GUIDELINE = 5.0 (A3)
1991 JAN	1.600	1.600	.	1.600	1.100
1991 FEB	1.600	1.500	.	1.900	1.000
1991 MAR	1.700	1.700	.	1.700	1.400
1991 APR	1.600	1.100	.	1.500	1.600
1991 MAY	1.500	1.400	.	1.300	1.200
1991 JUN	1.500	1.400	.	1.400	.900
1991 JUL	1.600	1.400	.	1.600	.900
1991 AUG	1.600	1.500	.	1.600	1.000
1991 SEP	1.900	2.200	.	1.700	1.400
1991 OCT	1.600	1.600	.	1.600	1.100
1991 NOV	1.500	.	.	1.400	1.000
1992 JAN	1.500	.	.	1.500	.
1992 APR	1.700	.	.800	1.700	1.200
1992 JUL	1.600	1.100	.	1.500	1.400
1992 OCT	1.200	.	.300 <T	1.200	1.000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
FLUORIDE (MG/L)			DET'N LIMIT = 0.01		GUIDELINE = 1.5 (A1)
1991 JAN	.260	.160	.	.280	.160
1991 FEB	.240	.160	.	.260	.160
1991 MAR	.240	.140	.	.240	.160
1991 APR	.260	.160	.	.260	.140
1991 MAY	.240	.160	.	.260	.180
1991 JUN	.240	.140	.	.260	.160
1991 JUL	.240	.160	.	.260	.160
1991 AUG	.260	.140	.	.260	.140
1991 SEP	.280	.180	.	.280	.180
1991 OCT	.260	.140	.	.280	.180
1991 NOV	.260	.	.	.280	.180
1992 JAN	.260	.	.	.280	.
1992 APR	.240	.	.280	.260	.200
1992 JUL	.300	.200	.	.280	.200
1992 OCT	.240	.	.080	.260	.180
HARDNESS (MG/L)			DET'N LIMIT = 0.5		GUIDELINE = 80-100 (A4)
1991 JAN	414.600	332.700	.	419.700	366.200
1991 FEB	414.900	327.400	.	425.200	354.900
1991 MAR	397.300	331.400	.	397.000	326.000
1991 APR	162.000	302.000	.	329.000	302.000
1991 MAY	397.800	304.000	.	412.500	308.900
1991 JUN	286.000	301.000	.	.	320.000
1991 JUL	410.000	331.000	.	416.000	343.000
1991 AUG	409.100	322.600	.	412.100	336.600
1991 SEP	408.000	312.000	.	370.000	350.000
1991 OCT	410.000	332.000	.	406.000	327.000
1991 NOV	409.000	.	.	409.500	330.200
1992 JAN	329.900	.	.	317.900	.
1992 APR	399.000	.	314.000	404.000	293.000
1992 JUL	412.440	318.220	.	409.630	448.210
1992 OCT	399.000	.	395.000	410.000	327.000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
IONCAL (DIMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = N/A	
1991 JAN	.705	1.897	.	2.548	2.424
1991 FEB	.000 NAF	.230 NAF	.	.000 NAF	.842 NAF
1991 MAR	.914 NAF,	3.051 RID	.	1.752 NAF	5.330 RID
1991 APR	4.365 NAF	4.285 NAF	.	4.302 NAF	4.272 NAF
1991 MAY	3.989	2.431	.	1.550	4.112
1991 JUN	4.377 NAF	3.584 NAF	.	.000 NAF	4.335 NAF
1991 JUL	.542 NAF	.547 NAF	.	.368 NAF	1.448 NAF
1991 AUG	1.023	2.853	.	.453	4.063
1991 SEP	2.013 NAF	2.857 NAF	.	4.442 NAF	1.455 NAF
1991 OCT	1.065 NAF	.400 NAF	.	1.613 NAF	3.989 NAF
1991 NOV	.148	.	.	.011	3.478
1992 JAN	4.302	.	.	4.462	.
1992 APR	4.365	.	4.654	3.932	4.282
1992 JUL	3.937	4.100	.	2.742	3.488
1992 OCT	4.729 NAF	.	3.476 NAF	1.207 NAF	4.719 NAF
POTASSIUM (MG/L)		DET'N LIMIT = 0.01		GUIDELINE = 10 (F2)	
1991 JAN	2.980	1.480	.	2.920	1.410
1991 FEB	3.210	1.580	.	3.170	1.290
1991 MAR	3.040	1.490	.	3.150	1.340
1991 APR	2.700	1.250	.	2.700	1.300
1991 MAY	3.240	1.640	.	3.250	1.390
1991 JUN	2.800	1.350	.	IIS	1.250
1991 JUL	3.000	1.400	.	2.900	1.200
1991 AUG	3.170	1.560	.	3.140	1.240
1991 SEP	3.300	1.600	.	3.200	1.300
1991 OCT	3.200	1.650	.	3.150	1.350
1991 NOV	3.130	.	.	3.150	1.020
1992 JAN	3.290	.	.	3.247	.
1992 APR	3.220	.	1.257	3.155	1.408
1992 JUL	3.114	1.469	.	3.073	1.441
1992 OCT	3.023	.	1.463	3.071	1.351

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
LANGELIERS INDEX (OMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A
1991 JAN	1.364	1.293	.	1.348	1.194
1991 FEB	.938 NAF	.909 NAF	.	.921 NAF	.940 NAF
1991 MAR	1.339	1.220 RID	.	1.331	1.112 RID
1991 APR	.999	1.088	.	1.056	1.155
1991 MAY	1.009	.977	.	1.007	.920
1991 JUN	.490	.769	.	.	.779
1991 JUL	1.278 NAF	1.205 NAF	.	1.245 NAF	1.133 NAF
1991 AUG	.848	.891	.	.870	.869
1991 SEP	1.207	1.085	.	1.175	1.097
1991 OCT	1.077	1.108	.	1.128	1.072
1991 NOV	1.284	.	.	1.298	1.150
1992 JAN	.991	.	.	.965	.
1992 APR	.967	.	.858	.940	.796
1992 JUL	.788	.867	.	.861	.883
1992 OCT	1.040	.	1.090	1.010	1.045
MAGNESIUM (MG/L)			DET'N LIMIT = 0.1		GUIDELINE = 30.0 (F2)
1991 JAN	32.500	28.450	.	33.350	32.750
1991 FEB	31.800	27.700	.	32.250	30.400
1991 MAR	32.750	27.750	.	32.250	29.450
1991 APR	31.700	30.600	.	31.400	27.600
1991 MAY	31.750	27.950	.	32.500	30.250
1991 JUN	31.500	28.000	.	!!S	30.700
1991 JUL	31.400	28.000	.	31.700	30.400
1991 AUG	31.500	27.400	.	32.000	30.000
1991 SEP	32.300	27.800	.	32.300	31.000
1991 OCT	31.500	27.000	.	31.800	28.700
1991 NOV	31.450	.	.	31.400	29.600
1992 JAN	30.800	.	.	31.400	.
1992 APR	31.620	.	31.320	32.340	31.080
1992 JUL	32.100	27.300	.	32.400	29.760
1992 OCT	31.400	.	39.100	31.800	29.500

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
SODIUM (MG/L)			DET'N LIMIT = 0.20		GUIDELINE = 200 (A4)
1991 JAN	94.200	6.400	.	90.000	13.700
1991 FEB	99.200	6.100	.	96.800	9.000
1991 MAR	100.700	6.200	.	99.600	8.300
1991 APR	96.400	11.000	.	97.000	6.400
1991 MAY	116.000	7.500	.	110.500	10.400
1991 JUN	105.000	7.200	.	IIS	10.000
1991 JUL	97.800	7.000	.	98.800	9.800
1991 AUG	100.000	7.100	.	99.700	10.100
1991 SEP	100.000	7.800	.	99.200	10.400
1991 OCT	92.200	7.000	.	93.000	9.800
1991 NOV	94.600	.	.	93.600	10.300
1992 JAN	94.100	.	.	94.120	.
1992 APR	100.440	.	15.410	98.040	11.770
1992 JUL	94.560	4.850	.	93.360	7.950
1992 OCT	93.600	.	34.200	94.100	10.600
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = 0.05 (F2)
1991 JAN	.028	BDL	.	.024	BDL
1991 FEB	.030	.012	.	.024	.048
1991 MAR	.022	.008 <T	.	.020	BDL
1991 APR	.022	.002 <T	.	.014	.012
1991 MAY	.016	.022	.	.014	.024
1991 JUN	BDL	.008 <T	.	BDL	.028
1991 JUL	.006 <T	.018	.	.006 <T	.032
1991 AUG	BDL	BDL	.	BDL	BDL
1991 SEP	.002 <T	.018	.	.004 <T	.106
1991 OCT	BDL	.008 <T	.	BDL	BDL
1991 NOV	.006 <T	.	.	BDL	.142
1992 JAN	.018	.	.	.004 <T	.
1992 APR	.006 <T	.	.046	.010	.010
1992 JUL	.002 <T	.008 <T	.	BDL	BDL
1992 OCT	.008 <T	.	.056	BDL	.004 <T

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
NITRITE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = 1.0 (A1)	
1991 JAN	BDL	BDL	.	.001 <T	BDL
1991 FEB	.001 <T	.001 <T	.	.001 <T	.045
1991 MAR	.001 <T	BDL	.	.001 <T	.004 <T
1991 APR	.003 <T	.005	.	.001 <T	.001 <T
1991 MAY	.009	.003 <T	.	.003 <T	.064
1991 JUN	.036	.001 <T	.	.001 <T	.061
1991 JUL	.045	.001 <T	.	.001 <T	.066
1991 AUG	.043	.002 <T	.	.001 <T	.083
1991 SEP	.057	.001 <T	.	BDL	.004 <T
1991 OCT	.048	.001 <T	.	.001 <T	.095
1991 NOV	.012	.	.	.001 <T	.005
1992 JAN	.003 <T	.	.	.003 <T	.
1992 APR	.004 <T	.	.002 <T	.003 <T	.004 <T
1992 JUL	.037	.006	.	.001 <T	.011
1992 OCT	.001 <T	.	.013	.001 <T	.043
NITRATE (TOTAL) (MG/L)			DET'N LIMIT = 0.005	GUIDELINE = 10.0 (A1)	
1991 JAN	1.070	1.790	.	.980	1.020
1991 FEB	1.240	1.640	.	1.180	.610
1991 MAR	1.330	1.720	.	1.330	1.050
1991 APR	1.280	1.110	.	1.260	1.710
1991 MAY	1.300	1.620	.	1.240	.640
1991 JUN	1.110	1.540	.	1.110	.550
1991 JUL	.955	1.540	.	.960	.570
1991 AUG	.925	1.500	.	.935	.600
1991 SEP	.870	1.470	.	.890	.490
1991 OCT	.910	1.420	.	.910	.545
1991 NOV	1.080	.	.	1.050	.055
1992 JAN	1.430	.	.	1.400	.
1992 APR	1.370	.	.055	1.300	.665
1992 JUL	.785	1.580	.	.780	1.140
1992 OCT	.975	.	.150	.930	.970

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = 0.02		GUIDELINE = N/A
1991 JAN	.180	.150	.	.170	.090 <T
1991 FEB	.200	.160	.	.180	.110
1991 MAR	.180	.110	.	.180	.090 <T
1991 APR	.270	.110	.	.210	.130
1991 MAY	.230	.180	.	.170	.120
1991 JUN	.180	.120	.	.160	.090 <T
1991 JUL	.180	.120	.	.180	.090 <T
1991 AUG	.190	.100	.	.150	.150
1991 SEP	.180	.140	.	.200	.160
1991 OCT	.190	.150	.	.190	.110
1991 NOV	.190	.	.	.170	.210
1992 JAN	.210	.	.	.190	.
1992 APR	.190	.	.100	.210	.120
1992 JUL	.150	.130	.	.150	.150
1992 OCT	.170	.	.140	.180	.140
PH (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5 (A4)
1991 JAN	8.360	8.380	.	8.350	8.270
1991 FEB	7.940	8.000	.	7.910	8.020
1991 MAR	8.370	8.310	.	8.360	8.290
1991 APR	8.360	8.330	.	8.330	8.320
1991 MAY	8.030	8.140	.	8.010	8.140
1991 JUN	7.860	7.940	.	7.880	7.960
1991 JUL	8.290	8.280	.	8.250	8.240
1991 AUG	7.860	7.980	.	7.880	7.990
1991 SEP	8.240	8.220	.	8.290	8.190
1991 OCT	8.100	8.180	.	8.160	8.210
1991 NOV	8.310	.	.	8.320	8.300
1992 JAN	8.260	.	.	8.280	.
1992 APR	8.010	.	8.070	7.980	8.090
1992 JUL	7.820	8.000	.	7.900	7.950
1992 OCT	8.070	.	8.150	8.020	8.170

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = 0.0005		GUIDELINE = N/A	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	.001 <T	.001 <T	.	.002	.004
1991 MAR	.001 <T	.001 <T	.	.003	.002 <T
1991 APR	.002 <T	.002 <T	.	.002 <T	.001 <T
1991 MAY	.002	.002 <T	.	.003	.002
1991 JUN	.000 <T	.000 <T	.	.003	.002 <T
1991 JUL	.000 <T	.001 <T	.	.000 <T	.002
1991 AUG	.000 <T	.000 <T	.	.000 <T	.001 <T
1991 SEP	.001 <T	.000 <T	.	.001 <T	.004
1991 OCT	.000 <T	.000 <T	.	.002 <T	.000 <T
1991 NOV	.001 <T	.	.	.001 <T	.004
1992 JAN	.000 <T	.	.	.002 <T	.
1992 APR	BDL	.	.001 <T	.002 <T	BDL
1992 JUL	.002 <T	.001 <T	.	.002 <T	.001 <T
1992 OCT	.003 <T	.	BDL	BDL	BDL
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = 0.002		GUIDELINE = 0.40 (F2)	
1991 JAN	.002 <T	BDL	.	.002 <T	BDL
1991 FEB	.006 <T	.005 <T	.	.004 <T	.007 <T
1991 MAR	.003 <T	BDL	.	.003 <T	.004 <T
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	.003 <T	BDL	.	.002 <T	.004 <T
1991 JUN	.002 <T	BDL	.	.003 <T	.003 <T
1991 JUL	BDL	BDL	.	.004 <T	.003 <T
1991 AUG	.002 <T	BDL	.	BDL	.014
1991 SEP	.002 <T	.005 <T	.	.002 <T	.005 <T
1991 OCT	.007 <T	BDL	.	.004 <T	.003 <T
1991 NOV	.002 <T	.	.	.002 <T	.007 <T
1992 JAN	.007 <T	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	.004 <T
1992 JUL	.003 <T	.004 <T	.	.002 <T	.008 <T
1992 OCT	.007 <T	.	.037	.004 <T	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHEMISTRY (LABORATORY)					
RESIDUE FILTRATE (MG/L)			DET'N LIMIT = N/A		GUIDELINE = 500 (A3)
1991 JAN	699.000	384.000 CRO	.	692.000	445.000 CRO
1991 FEB	759.000	384.000 CRO	.	763.000	425.000 CRO
1991 MAR	730.000	367.000 CRO	.	749.000	371.000 CRO
1991 APR	815.000	424.000 CRO	.	826.000	381.000 CRO
1991 MAY	789.000	375.000 CRO	.	811.000	414.000 CRO
1991 JUN	852.000	402.000 CRO	.	802.000	447.000 CRO
1991 JUL	771.000	385.000 CRO	.	812.000	426.000 CRO
1991 AUG	732.000	391.000 CRO	.	673.000	435.000 CRO
1991 SEP	686.000	402.000 CRO	.	641.000	449.000 CRO
1991 OCT	679.000	398.000 CRO	.	705.000	437.000 CRO
1991 NOV	712.000	.	.	673.000	433.000 CRO
1992 JAN	675.000	.	.	724.000	.
1992 APR	759.000	.	429.000 CRO	727.000	426.000 CRO
1992 JUL	772.000	374.000 CRO	.	773.000	421.000 CRO
1992 OCT	686.000	.	581.000	759.000	417.000 CRO
SULPHATE (MG/L)			DET'N LIMIT = 0.20		GUIDELINE = 500 (A3)
1991 JAN	100.700	38.680	.	106.200	47.620
1991 FEB	IIS	37.700	.	IIS	48.690
1991 MAR	98.740	38.010	.	102.870	43.930
1991 APR	103.140	44.640	.	109.750	38.430
1991 MAY	102.590	37.210	.	107.300	47.980
1991 JUN	99.130	36.520	.	108.150	47.280
1991 JUL	104.930	38.870	.	107.480	49.820
1991 AUG	104.130	36.280	.	109.360	48.960
1991 SEP	112.100	39.090	.	107.900	50.740
1991 OCT	106.410	37.940	.	115.240	49.050
1991 NOV	109.610	.	.	112.360	52.630
1992 JAN	106.100	.	.	103.390	.
1992 APR	102.700	.	49.990	111.180	49.040
1992 JUL	101.200	36.920	.	106.300	40.770
1992 OCT	104.840	.	61.310	99.620	45.110

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW		WELL P11 RAW		WELL P15 RAW	RESERVOIR ST ANDREW TOWER		RESERVOIR RAHMANS	
CHEMISTRY (LABORATORY)									
TURBIDITY (FTU)			DET'N LIMIT = 0.05			GUIDELINE = 1.0 (A1)			
1991 JAN	.570		1.100	RRV	.	.860		.720	
1991 FEB	.120		.090		.	.080		1.850	RRV
1991 MAR	.080		.150		.	.120		1.820	
1991 APR	.150	<T	1.400		.	.140	<T	.100	<T
1991 MAY	.150	<T	.430		.	.200	<T	1.920	RRV
1991 JUN	.120		.150		.	.160		2.100	
1991 JUL	.030		.070		.	.040		1.200	
1991 AUG	.060		.040		.	.030		.550	
1991 SEP	.050		.060		.	.100		2.700	RRV
1991 OCT	.070	<T	.340		.	BDL		.190	<T
1991 NOV	.180	<T	.		.	.160	<T	.900	
1992 JAN	.120	<T	.		.	.110	<T	.	
1992 APR	.150	<T	.		2.000	.290		.810	
1992 JUL	.160	<T	.710		.	.170	<T	.890	
1992 OCT	.270		.		39.000	.210	<T	.980	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
SILVER (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = N/A
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	BDL	.	BDL	BDL
1991 AUG	BDL	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	BDL	BDL
1991 OCT	BDL	BDL	.	BDL	BDL
1991 NOV	BDL	.	.	BDL	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	BDL	BDL	.	BDL	BDL
1992 OCT	BDL	.	.060 <T	BDL	.060 <T
ALUMINUM (UG/L)			DET'N LIMIT = 0.10		GUIDELINE = 100 (A4)
1991 JAN	2.400	4.000	.	2.700	3.400
1991 FEB	1.300	1.200	.	1.100	1.300
1991 MAR	1.100	1.300	.	1.300	1.300
1991 APR	1.700	2.400	.	1.400	2.200
1991 MAY	5.500	2.800	.	14.000	2.800
1991 JUN	1.700	2.700	.	3.500	3.300
1991 JUL	.820 <T	1.000 <T	.	1.200	1.200
1991 AUG	6.600	4.900	.	3.800	6.500
1991 SEP	.830 <T	1.600	.	1.000 <T	1.600
1991 OCT	.810 <T	1.200	.	.780 <T	1.200
1991 NOV	.770 <T	.	.	.930 <T	.950 <T
1992 JAN	.500 <T	.	.	.450 <T	.
1992 APR	2.500	.	3.300	2.400	3.800
1992 JUL	1.400	3.200	.	3.800	3.100
1992 OCT	.770 <T	.	1.900	.940 <T	1.200

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
ARSENIC (UG/L)			DET'N LIMIT = 0.10		GUIDELINE = 25 (A1)
1991 JAN	BDL	.470 <T	.	BDL	BDL
1991 FEB	BDL	.210 <T	.	BDL	.340 <T
1991 MAR	BDL	.460 <T	.	BDL	.740 <T
1991 APR	BDL	.370 <T	.	BDL	.250 <T
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	.400 <T	.540 <T	.	.300 <T	.580 <T
1991 JUL	BDL	.690 <T	.	BDL	.660 <T
1991 AUG	.230 <T	.300 <T	.	.180 <T	.420 <T
1991 SEP	.270 <T	.210 <T	.	.250 <T	.520 <T
1991 OCT	.260 <T	.390 <T	.	.500 <T	.590 <T
1991 NOV	.690 <T	.	.	.570 <T	.660 <T
1992 JAN	.550 <T	.	.	.600 <T	.
1992 APR	BDL	.	.870 <T	.260 <T	.680 <T
1992 JUL	.930 <T	.790 <T	.	.500 <T	.460 <T
1992 OCT	.930 <T	.	2.000	1.200	.390 <T
BARIUM (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 1000 (A2)
1991 JAN	110.000	110.000	.	100.000	170.000
1991 FEB	94.000	100.000	.	92.000	180.000
1991 MAR	87.000	95.000	.	87.000	140.000
1991 APR	85.000	140.000	.	84.000	96.000
1991 MAY	95.000	98.000	.	92.000	170.000
1991 JUN	90.000	97.000	.	88.000	170.000
1991 JUL	83.000	99.000	.	81.000	170.000
1991 AUG	89.000	93.000	.	88.000	160.000
1991 SEP	97.000	97.000	.	92.000	170.000
1991 OCT	90.000	96.000	.	85.000	160.000
1991 NOV	110.000	.	.	110.000	230.000
1992 JAN	89.000	.	.	85.000	.
1992 APR	96.000	.	200.000	97.000	140.000
1992 JUL	75.000	110.000	.	71.000	130.000
1992 OCT	77.000	.	340.000	76.000	140.000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
BORON (UG/L)			DET'N LIMIT = 2.00		GUIDELINE = 5000 (A1)
1991 JAN	110.000	75.000	.	120.000	71.000
1991 FEB	44.000	11.000 <T	.	43.000	9.000 <T
1991 MAR	60.000	23.000	.	58.000	20.000 <T
1991 APR	42.000	9.700 <T	.	41.000	10.000 <T
1991 MAY	53.000	9.800 <T	.	53.000	10.000 <T
1991 JUN	55.000	27.000	.	40.000	23.000
1991 JUL	46.000	16.000 <T	.	46.000	14.000 <T
1991 AUG	60.000	15.000 <T	.	63.000	17.000 <T
1991 SEP	53.000	13.000 <T	.	52.000	10.000 <T
1991 OCT	74.000	39.000	.	52.000	16.000 <T
1991 NOV	49.000	.	.	52.000	8.200 <T
1992 JAN	63.000	.	.	50.000	.
1992 APR	50.000	.	8.000 <T	49.000	8.400 <T
1992 JUL	45.000	27.000	.	40.000	35.000
1992 OCT	47.000	.	9.400 <T	47.000	13.000 <T
BERYLLIUM (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 6800 (04)
1991 JAN	.100 <T	.220 <T	.	.130 <T	.170 <T
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	BDL	BDL	.	.170 <T	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	BDL	.	BDL	BDL
1991 AUG	.060 <T	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	BDL	BDL
1991 OCT	BDL	BDL	.	BDL	BDL
1991 NOV	BDL	.	.	BDL	BDL
1992 JAN	.060 <T	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	BDL	BDL	.	BDL	BDL
1992 OCT	.080 <T	.	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
CADMIUM (UG/L)			DET'N LIMIT = 0.05	GUIDELINE = 5.0 (A1)	
1991 JAN	.150 <T	BDL	.	.130 <T	BDL
1991 FEB	.110 <T	BDL	.	.110 <T	BDL
1991 MAR	.110 <T	BDL	.	BDL	BDL
1991 APR	.160 <T	BDL	.	.120 <T	BDL
1991 MAY	BDL	.180 <T	.	BDL	.090 <T
1991 JUN	.100 <T	BDL	.	.060 <T	BDL
1991 JUL	.130 <T	BDL	.	.110 <T	BDL
1991 AUG	.100 <T	BDL	.	.100 <T	BDL
1991 SEP	.060 <T	BDL	.	BDL	BDL
1991 OCT	.110 <T	BDL	.	.100 <T	BDL
1991 NOV	.120 <T	.	.	.130 <T	BDL
1992 JAN	.110 <T	.	.	.110 <T	.
1992 APR	.170 <T	.	.080 <T	.180 <T	.080 <T
1992 JUL	BDL	BDL	.	BDL	BDL
1992 OCT	BDL	.	BDL	BDL	BDL
COBALT (UG/L)			DET'N LIMIT = 0.02	GUIDELINE = N/A	
1991 JAN	1.200	.480 <T	.	1.100	.130 <T
1991 FEB	1.600	.920 <T	.	1.500	.560 <T
1991 MAR	.610 <T	.290 <T	.	.520 <T	BDL
1991 APR	.660 <T	.110 <T	.	.530 <T	.380 <T
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	.940 <T	.420 <T	.	.490 <T	.070 <T
1991 JUL	3.000	2.000	.	2.600	1.800
1991 AUG	1.900	.620 <T	.	1.200	.170 <T
1991 SEP	2.000	.620 <T	.	1.200	.140 <T
1991 OCT	1.800	.640 <T	.	.570 <T	.120 <T
1991 NOV	1.700	.	.	.590 <T	.200 <T
1992 JAN	1.200	.	.	.610 <T	.
1992 APR	1.600	.	.170 <T	1.200	.550 <T
1992 JUL	1.900	.340 <T	.	1.200	.470 <T
1992 OCT	2.100	.	2.000	1.400	2.000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW		WELL P11 RAW		WELL P15 RAW		RESERVOIR ST ANDREW TOWER		RESERVOIR RAHMANS	
METALS										
CHROMIUM (UG/L)					DET'N LIMIT = 0.50				GUIDELINE = 50.0 (A1)	
1991 JAN	9.700		12.000		.		11.000		11.000	
1991 FEB	BDL		3.000	<T	.		.580	<T	1.400	<T
1991 MAR	5.900		7.100		.		5.600		5.800	
1991 APR	BDL		1.700	<T	.		BDL		2.600	<T
1991 MAY	2.900	<T	3.700	<T	.		1.700	<T	3.400	<T
1991 JUN	7.600		11.000		.		.660	<T	9.000	
1991 JUL	6.100		7.300		.		4.900	<T	4.700	<T
1991 AUG	2.700	<T	4.500	<T	.		3.300	<T	2.600	<T
1991 SEP	1.300	<T	3.200	<T	.		.720	<T	1.600	<T
1991 OCT	8.000		10.000		.		1.500	<T	2.600	<T
1991 NOV	.550	<T	.		.		1.200	<T	.610	<T
1992 JAN	7.200		.		.		1.400	<T	.	
1992 APR	BDL		.		BDL		BDL		BDL	
1992 JUL	BDL		4.100	<T	.		BDL		5.700	
1992 OCT	5.300		.		.870	<T	5.300		2.000	<T
COPPER (UG/L)					DET'N LIMIT = 0.50				GUIDELINE = 1000 (A3)	
1991 JAN	2.800	<T	.870	<T	.		3.000	<T	1.800	<T
1991 FEB	2.200	<T	.820	<T	.		2.400	<T	1.200	<T
1991 MAR	1.900	<T	.710	<T	.		2.200	<T	1.200	<T
1991 APR	1.900	<T	1.800	<T	.		2.400	<T	.850	<T
1991 MAY	3.100	<T	.960	<T	.		4.800	<T	.730	<T
1991 JUN	1.700	<T	.740	<T	.		2.500	<T	.590	<T
1991 JUL	3.100	<T	.970	<T	.		3.300	<T	1.100	<T
1991 AUG	3.800	<T	.880	<T	.		3.400	<T	BDL	
1991 SEP	1.800	<T	.730	<T	.		2.000	<T	BDL	
1991 OCT	2.100	<T	.780	<T	.		2.200	<T	.820	<T
1991 NOV	2.300	<T	.		.		2.500	<T	BDL	
1992 JAN	1.700	<T	.		.		1.600	<T	.	
1992 APR	1.900	<T	.		BDL		2.200	<T	.890	<T
1992 JUL	1.900	<T	3.100	<T	.		1.900	<T	.880	<T
1992 OCT	10.000		.		1.300	<T	1.500	<T	.780	<T

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW		WELL P11 RAW		WELL P15 RAW	RESERVOIR ST ANDREW TOWER		RESERVOIR RAHMANS	
METALS									
IRON (UG/L)					DET'N LIMIT = 6.00			GUIDELINE = 300 (A3)	
1991 JAN	BDL		42.000	<T	.	10.000	<T	76.000	
1991 FEB	BDL		13.000	<T	.	38.000	<T	320.000	
1991 MAR	BDL		9.900	<T	.	20.000	<T	130.000	
1991 APR	6.900	<T	150.000		.	23.000	<T	12.000	<T
1991 MAY	BDL		18.000	<T	.	43.000	<T	260.000	
1991 JUN	BDL		8.500	<T	.	22.000	<T	260.000	
1991 JUL	BDL		18.000	<T	.	15.000	<T	180.000	
1991 AUG	6.400	<T	21.000	<T	.	24.000	<T	250.000	
1991 SEP	BDL		16.000	<T	.	20.000	<T	430.000	
1991 OCT	BDL		15.000	<T	.	24.000	<T	180.000	
1991 NOV	BDL		.		.	29.000	<T	610.000	
1992 JAN	6.100	<T	.		.	37.000	<T	.	
1992 APR	12.000	<T	.		150.000	40.000	<T	89.000	
1992 JUL	6.700	<T	70.000		.	12.000	<T	110.000	
1992 OCT	150.000		.		5000.000 RRV	150.000		290.000	
MERCURY (UG/L)					DET'N LIMIT = 0.02			GUIDELINE = 1.0 (A1)	
1991 JAN	BDL		BDL		.	BDL		BDL	
1991 FEB	BDL		BDL		.	BDL		BDL	
1991 MAR	BDL		BDL		.	BDL		BDL	
1991 APR	BDL		BDL		.	BDL		BDL	
1991 MAY	BDL		BDL		.	BDL		BDL	
1991 JUN	BDL		BDL		.	BDL		BDL	
1991 JUL	BDL		BDL		.	BDL		BDL	
1991 AUG	BDL		BDL		.	BDL		BDL	
1991 SEP	BDL		BDL		.	BDL		BDL	
1991 OCT	BDL		BDL		.	BDL		BDL	
1991 NOV	BDL		.		.	BDL		BDL	
1992 JAN	BDL		.		.	BDL		.	
1992 APR	BDL		.		BDL	BDL		BDL	
1992 JUL	.040	<T	BDL		.	BDL		BDL	
1992 OCT	BDL		.		BDL	BDL		BDL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW		WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS						
MANGANESE (UG/L)			DET'N LIMIT = 0.05			GUIDELINE = 50.0 (A3)
1991 JAN	30.000	86.000		.	29.000	24.000
1991 FEB	25.000	83.000		.	25.000	34.000
1991 MAR	21.000	70.000		.	21.000	30.000
1991 APR	21.000	31.000		.	21.000	78.000
1991 MAY	25.000	78.000		.	25.000	31.000
1991 JUN	26.000	76.000		.	19.000	31.000
1991 JUL	28.000	87.000		.	23.000	31.000
1991 AUG	33.000	85.000		.	25.000	35.000
1991 SEP	36.000	83.000		.	23.000	42.000
1991 OCT	36.000	96.000		.	14.000	41.000
1991 NOV	32.000	.		.	10.000	53.000
1992 JAN	21.000	.		.	11.000	.
1992 APR	25.000	.		7.500	20.000	78.000
1992 JUL	29.000	24.000		.	18.000	46.000
1992 OCT	22.000	.		16.000	11.000	43.000
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.05			GUIDELINE = N/A
1991 JAN	3.200	.590		.	3.300	1.100
1991 FEB	3.000	.510		.	2.900	1.100
1991 MAR	2.900	.530		.	2.700	.640
1991 APR	2.800	.890		.	2.700	.570
1991 MAY	1.800	.430	<T	.	2.300	.820
1991 JUN	3.000	.580		.	3.000	.960
1991 JUL	2.900	.530		.	2.800	.880
1991 AUG	3.600	.570		.	3.700	.910
1991 SEP	4.100	.420	<T	.	3.800	.890
1991 OCT	3.500	.490	<T	.	3.500	.980
1991 NOV	4.200	.		.	4.300	1.200
1992 JAN	3.400	.		.	3.400	.
1992 APR	3.600	.		.730	3.700	1.000
1992 JUL	3.000	.640		.	2.900	.820
1992 OCT	2.600	.		BDL	2.500	.540

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
NICKEL (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 350 (D3)	
1991 JAN	5.800	.290 <T	.	5.100	.520 <T
1991 FEB	8.900	3.400	.	9.200	3.400
1991 MAR	4.300	BDL	.	4.400	BDL
1991 APR	4.500	BDL	.	4.900	.630 <T
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	3.800	BDL	.	3.100	BDL
1991 JUL	9.700	3.700	.	9.200	2.700
1991 AUG	6.400	1.300 <T	.	6.900	1.300 <T
1991 SEP	2.000 <T	BDL	.	2.200	BDL
1991 OCT	6.000	.390 <T	.	4.800	.250 <T
1991 NOV	3.700	.	.	5.400	BDL
1992 JAN	4.200	.	.	3.600	.
1992 APR	10.000	.	1.900 <T	10.000	2.700
1992 JUL	6.800	.890 <T	.	6.000	1.100 <T
1992 OCT	8.100	.	11.000	8.000	8.500
LEAD (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 10 (A1)	
1991 JAN	.560	BDL	.	.410 <T	BDL
1991 FEB	.520	BDL	.	.390 <T	.100 <T
1991 MAR	.400 <T	BDL	.	.240 <T	.060 <T
1991 APR	.430 <T	.300 <T	.	.300 <T	BDL
1991 MAY	.810	.270 <T	.	.490 <T	.230 <T
1991 JUN	.380 <T	BDL	.	.280 <T	.070 <T
1991 JUL	.390 <T	BDL	.	.270 <T	.190 <T
1991 AUG	.500 <T	BDL	.	.440 <T	BDL
1991 SEP	.540	.060 <T	.	.260 <T	.070 <T
1991 OCT	.440 <T	BDL	.	.590	BDL
1991 NOV	.520	.	.	.280 <T	BDL
1992 JAN	.530	.	.	.260 <T	.
1992 APR	.570	.	.090 <T	.380 <T	.080 <T
1992 JUL	.450 <T	.070 <T	.	.240 <T	.350 <T
1992 OCT	.570	.	.750	.130 <T	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
ANTIMONY (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 146 (D4)
1991 JAN	.660	.310 <T	.	.650	.370 <T
1991 FEB	.740	.440 <T	.	.770	.470 <T
1991 MAR	.920	.470 <T	.	.950	.640
1991 APR	.870	.550	.	.830	.380 <T
1991 MAY	.960	.570	.	.720	.640
1991 JUN	.800	.470 <T	.	.810	.440 <T
1991 JUL	.920	.620	.	1.100	.760
1991 AUG	.900	.430 <T	.	.880	.490 <T
1991 SEP	.930	.460 <T	.	.880	.460 <T
1991 OCT	.940	.470 <T	.	.880	.530
1991 NOV	.750	.	.	.800	.600
1992 JAN	.950	.	.	.840	.
1992 APR	.650	.	.380 <T	.800	.470 <T
1992 JUL	.800	.510	.	.770	.400 <T
1992 OCT	.750	.	.320 <T	.780	.550
SELENIUM (UG/L)			DET'N LIMIT = 1.00		GUIDELINE = 10 (A1)
1991 JAN	1.100 <T	BDL	.	1.400 <T	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	1.500 <T	BDL	.	1.200 <T	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	1.100 <T	BDL
1991 JUL	1.300 <T	BDL	.	BDL	BDL
1991 AUG	BDL	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	1.500 <T	1.200 <T
1991 OCT	BDL	BDL	.	2.000 <T	BDL
1991 NOV	1.100 <T	.	.	1.900 <T	BDL
1992 JAN	BDL	.	.	1.200 <T	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	BDL	BDL	.	BDL	BDL
1992 OCT	4.700 <T	.	4.900 <T	3.200 <T	2.000 <T

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW		WELL P11 RAW		WELL P15 RAW		RESERVOIR ST ANDREW TOWER		RESERVOIR RAHMANS	
METALS										
STRONTIUM (UG/L)					DET'N LIMIT = 0.10				GUIDELINE = N/A	
1991 JAN	720.000		140.000		.		820.000		250.000	
1991 FEB	690.000		150.000		.		750.000		270.000	
1991 MAR	680.000		140.000		.		710.000		210.000	
1991 APR	620.000		220.000		.		670.000		130.000	
1991 MAY	740.000		140.000		.		820.000		230.000	
1991 JUN	660.000		130.000		.		720.000		250.000	
1991 JUL	600.000		140.000		.		680.000		250.000	
1991 AUG	680.000		130.000		.		740.000		240.000	
1991 SEP	750.000		130.000		.		770.000		260.000	
1991 OCT	690.000		130.000		.		740.000		270.000	
1991 NOV	850.000		.		.		900.000		350.000	
1992 JAN	700.000		.		.		690.000		.	
1992 APR	720.000		.		530.000		830.000		290.000	
1992 JUL	660.000		140.000		.		690.000		220.000	
1992 OCT	610.000		.		200.000		650.000		220.000	
TITANIUM (UG/L)					DET'N LIMIT = 0.50				GUIDELINE = N/A	
1991 JAN	15.000		17.000		.		16.000		18.000	
1991 FEB	14.000		19.000		.		15.000		20.000	
1991 MAR	21.000		26.000		.		21.000		26.000	
1991 APR	17.000		22.000		.		17.000		23.000	
1991 MAY	16.000		37.000		.		16.000		39.000	
1991 JUN	11.000		12.000		.		9.800		14.000	
1991 JUL	28.000		39.000		.		28.000		42.000	
1991 AUG	4.000	<T	3.900	<T	.		4.500	<T	3.900	<T
1991 SEP	6.400		8.900		.		6.300		9.200	
1991 OCT	8.300		10.000		.		7.600		10.000	
1991 NOV	7.200		.		.		7.100		9.600	
1992 JAN	7.000		.		.		7.300		.	
1992 APR	18.000		.		17.000		19.000		19.000	
1992 JUL	15.000		19.000		.		15.000		20.000	
1992 OCT	20.000		.		38.000		21.000		33.000	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
THALLIUM (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 13 (D4)
1991 JAN	.120 <T	BDL	.	.130 <T	BDL
1991 FEB	.160 <T	BDL	..	.120 <T	BDL
1991 MAR	.110 <T	BDL	.	.100 <T	BDL
1991 APR	.130 <T	BDL	.	.150 <T	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	.150 <T	BDL	.	.130 <T	BDL
1991 JUL	.100 <T	BDL	.	.090 <T	BDL
1991 AUG	.140 <T	BDL	.	.140 <T	BDL
1991 SEP	.140 <T	BDL	.	.160 <T	BDL
1991 OCT	.130 <T	BDL	.	.110 <T	BDL
1991 NOV	.260 <T	.	.	.180 <T	.070 <T
1992 JAN	.130 <T	.	.	.130 <T	.
1992 APR	.170 <T	.	BDL	.190 <T	BDL
1992 JUL	.120 <T	BDL	.	.100 <T	BDL
1992 OCT	.130 <T	.	BDL	.080 <T	BDL
URANIUM (UG/L)			DET'N LIMIT = 0.05		GUIDELINE = 100 (A1)
1991 JAN	1.000	1.500	.	1.000	1.400
1991 FEB	.770	1.400	.	.770	.780
1991 MAR	.790	1.500	.	.830	1.200
1991 APR	.800	1.300	.	.840	1.600
1991 MAY	.580	1.300	.	.460 <T	.720
1991 JUN	.840	1.600	.	.820	.920
1991 JUL	.850	1.500	.	.850	.840
1991 AUG	.880	1.600	.	.890	.860
1991 SEP	.940	1.500	.	.890	.860
1991 OCT	.880	1.500	.	.920	.880
1991 NOV	1.200	.	.	1.200	.550
1992 JAN	.970	.	.	.970	.
1992 APR	.940	.	.470 <T	.900	.980
1992 JUL	.770	.870	.	.700	1.300
1992 OCT	.850	.	.650	.740	1.000

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
METALS					
VANADIUM (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = N/A	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	.090 <T	.	BDL	BDL
1991 MAR	BDL	.070 <T	.	BDL	BDL
1991 APR	BDL	.070 <T	.	BDL	.060 <T
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	.410 <T	BDL	.	.510	.150 <T
1991 AUG	.290 <T	.110 <T	.	.270 <T	.100 <T
1991 SEP	BDL	.090 <T	.	BDL	.100 <T
1991 OCT	BDL	.070 <T	.	BDL	BDL
1991 NOV	BDL	.	.	BDL	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	.590	.	BDL	.630	.130 <T
1992 JUL	.400 <T	.090 <T	.	.380 <T	.070 <T
1992 OCT	BDL	.	.140 <T	BDL	BDL
ZINC (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 5000 (A3)	
1991 JAN	79.000	11.000	.	94.000	14.000
1991 FEB	72.000	12.000	.	80.000	13.000
1991 MAR	63.000	9.800	.	74.000	19.000
1991 APR	64.000	14.000	.	82.000	11.000
1991 MAY	96.000	11.000	.	120.000	11.000
1991 JUN	66.000	10.000	.	73.000	11.000
1991 JUL	64.000	12.000	.	71.000	13.000
1991 AUG	64.000	9.000	.	75.000	8.300
1991 SEP	71.000	9.800	.	83.000	11.000
1991 OCT	65.000	9.800	.	76.000	11.000
1991 NOV	74.000	.	.	82.000	11.000
1992 JAN	67.000	.	.	77.000	.
1992 APR	92.000	.	9.400	95.000	18.000
1992 JUL	69.000	11.000	.	69.000	8.800
1992 OCT	64.000	.	15.000	61.000	11.000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHLOROAROMATICS					
HEXACHLOROBUTADIENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 450 (D4)	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
123-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
1234-TETCLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
1235-TETCLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
124-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 10000 (I)	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
1245-TETCLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 38000 (D4)	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
135-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
HEXACHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 10 (C1)	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 1900 (D4)	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
OCTACHLOROSTYRENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
PENTACHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 74000 (D4)	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
236-TRICHLOROTOLUENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHLOROAROMATICS					
245-TRICHLOROTOLUENE (NG/L)	DET'N LIMIT = 5.000			GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
26A-TRICHLOROTOLUENE (NG/L)	DET'N LIMIT = 5.000			GUIDELINE = N/A	
43 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
CHLOROPHENOLS					
234-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = N/A	
4 SAMPLES	BDL	BDL	.	BDL	BDL
2345-TETCHLOROPHENOL (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
4 SAMPLES	BDL	BDL	.	BDL	BDL
2356-TETCHLOROPHENOL (NG/L)		DET'N LIMIT = 10.0		GUIDELINE = N/A	
4 SAMPLES	BDL	BDL	.	BDL	BDL
245-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = 2600000 (D4)	
4 SAMPLES	BDL	BDL	.	BDL	BDL
246-TRICHLOROPHENOL (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = 5000 (A1)	
4 SAMPLES	BDL	BDL	.	BDL	BDL
PENTACHLOROPHENOL (NG/L)		DET'N LIMIT = 10.00		GUIDELINE = 60000 (A1)	
4 SAMPLES	BDL	BDL	.	BDL	BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
PESTICIDES AND PCB					
ALDRIN (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 700 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 700 (G)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
BETA BHC (NG/L)			DET'N LIMIT = 1.00		GUIDELINE = 300 (G)
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	!SM	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	3.000 <T	BDL	.	3.000 <T	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	!AW	.	!AW	!AW
1991 AUG	!AW	!AW	.	!AW	!AW
1991 SEP	!AW	!AW	.	!AW	!AW
1991 OCT	BDL	BDL	.	BDL	BDL
1991 NOV	BDL	.	.	BDL	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	.	BDL	.	.	BDL
1992 OCT	BDL	.	BDL	BDL	BDL
LINDANE (GAMMA BHC) (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 4000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
ALPHA CHLORDANE (NG/L)			DET'N LIMIT = 2.000		GUIDELINE = 7000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
GAMMA CHLORDANE (NG/L)			DET'N LIMIT = 2.00		GUIDELINE = 7000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
DIELDRIN (NG/L)			DET'N LIMIT = 2.00		GUIDELINE = 700 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
METHOXYCHLOR (NG/L)			DET'N LIMIT = 5.0		GUIDELINE = 900000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
PESTICIDES AND PCB					
ENDOSULFAN 1 (NG/L)			DET'N LIMIT = 2.00		GUIDELINE = 74000 (D4)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
ENDOSULFAN II (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 74000 (D4)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
ENDRIN (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 1600 (D3)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
ENDOSULFAN SULPHATE (NG/L)			DET'N LIMIT = 5.00		GUIDELINE = N/A
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
HEPTACHLOR EPOXIDE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 3000 (A1)
30 SAMPLES	BDL	BDL	BDL	BDL	BDL
HEPTACHLOR (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 3000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
MIREX (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = N/A
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
OXYCHLORDANE (NG/L)			DET'N LIMIT = 2.000		GUIDELINE = N/A
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
O,P-DDT (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 30000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
PCB (NG/L)			DET'N LIMIT = 20.00		GUIDELINE = 3000 (A2)
41 SAMPLES	BDL	BDL	BDL	BDL	BDL
P,P-DDD (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 30000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
P,P-DDE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 30000 (A1)
43 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
PESTICIDES AND PCB					
P,P-DDT (NG/L) DET'N LIMIT = 5.000 GUIDELINE = 30000 (A1)					
43 SAMPLES	BDL	BDL	BDL	BDL	BDL
TOXAPHENE (NG/L) DET'N LIMIT = 500.0 GUIDELINE = 5000 (A1)					
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
AMETRINE (NG/L) DET'N LIMIT = 50.0 GUIDELINE = 300000 (D3)					
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
ATRAZINE (NG/L) DET'N LIMIT = 50.0 GUIDELINE = 60000 (A2)					
1991 JAN	290.000 <T	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	90.000 <T	BDL	.	70.000 <T	BDL
1991 MAY	90.000 <T	BDL	.	120.000 <T	BDL
1991 JUN	!AW	!AW	.	!AW	!AW
1991 JUL	!AW	!AW	.	!AW	!AW
1991 AUG	!AW	!AW	.	!AW	!AW
1991 SEP	!AW	!AW	.	!AW	!AW
1991 OCT	!AW	!AW	.	!AW	!AW
1991 NOV	110.000 <T	.	.	120.000 <T	BDL
1992 JAN	100.000 <T	.	.	100.000 <T	.
1992 APR	80.000 <T	.	BDL	90.000 <T	BDL
1992 JUL	.	BDL	.	.	BDL
1992 OCT	140.000 <T	.	BDL	150.000 <T	BDL
ATRATONE (NG/L) DET'N LIMIT = 50.0 GUIDELINE = N/A					
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
CYANAZINE (BLADEX) (NG/L) DET'N LIMIT = 100.0 GUIDELINE = 10000 (A2)					
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
DESETHYL ATRAZINE (NG/L) DET'N LIMIT = 200.0 GUIDELINE = 60000 (A2)					
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
DESETHYL SIMAZINE (NG/L) DET'N LIMIT = 200.0 GUIDELINE = 10000 (A2)					
35 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
PESTICIDES AND PCB					
PROMETONE (NG/L)			DET'N LIMIT = 50.000		GUIDELINE = 52500 (D3)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
PROPAZINE (NG/L)			DET'N LIMIT = 50.000		GUIDELINE = 700000 (D3)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
PROMETRYNE (NG/L)			DET'N LIMIT = 50.000		GUIDELINE = 1000 (A2)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
METRIBUZIN (SENCOR) (NG/L)			DET'N LIMIT = 100.0		GUIDELINE = 80000 (A1)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
SIMAZINE (NG/L)			DET'N LIMIT = 50.00		GUIDELINE = 10000 (A2)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
ALACHLOR (LASSO) (NG/L)			DET'N LIMIT = 500.0		GUIDELINE = 5000 (A2)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
METOLACHLOR (NG/L)			DET'N LIMIT = 500.0		GUIDELINE = 50000 (A2)
35 SAMPLES	BDL	BDL	BDL	BDL	BDL
HEXACLCYCLOPENTADIEN (NG/L)			DET'N LIMIT = 5.00		GUIDELINE = 206000 (D4)
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	ISM	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	IAW	.	IAW	IAW
1991 AUG	IAW	IAW	.	IAW	IAW
1991 SEP	IAW	IAW	.	IAW	IAW
1991 OCT	BDL	BDL	.	BDL	BDL
1991 NOV	BDL	.	.	8.000 <T	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	IOU	.	IOU	IOU	IOU
1992 JUL	.	IOU	.	.	IOU
1992 OCT	IOU	.	IOU	IOU	IOU

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
PHENOLICS PHENOLICS (UG/L)			DET'N LIMIT = 0.2		GUIDELINE = N/A
1991 JAN	.600 <T	.400 <T	.	.600 <T	.800 <T
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	.800 <T	.800 <T	.	.400 <T	.800 <T
1991 JUN	.400 <T	.400 <T	.	.800 <T	1.000
1991 JUL	BDL	BDL	.	BDL	BDL
1991 AUG	.400 <T	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	BDL	BDL
1991 OCT	.400 <T	.400 <T	.	BDL	.400 <T
1991 NOV	.400 <T	.	.	BDL	.400 <T
1992 JAN	BDL	.	.	BDL	.
1992 APR	.800 <T	.	1.400	1.400	1.600
1992 JUL	BDL	BDL	.	BDL	.600 <T
1992 OCT	BDL	.	BDL	BDL	.800 <T

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
POLYAROMATIC HYDROCARBONS					
PHENANTHRENE (NG/L)			DET'N LIMIT = 10.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
ANTHRACENE (NG/L)			DET'N LIMIT = 1.0		GUIDELINE = N/A
20 SAMPLES	BDL	BDL	.	BDL	BDL
FLUORANTHENE (NG/L)			DET'N LIMIT = 20.0		GUIDELINE = 42000 (D4)
24 SAMPLES	BDL	BDL	.	BDL	BDL
PYRENE (NG/L)			DET'N LIMIT = 20.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
BENZO(A)ANTHRACENE (NG/L)			DET'N LIMIT = 20.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
CHRYSENE (NG/L)			DET'N LIMIT = 50.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
DIMETH. BENZ(A)ANTHR (NG/L)			DET'N LIMIT = 5.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
BENZO(E) PYRENE (NG/L)			DET'N LIMIT = 50.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
BENZO(B) FLUORANTHEN (NG/L)			DET'N LIMIT = 10.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
PERYLENE (NG/L)			DET'N LIMIT = 10.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
BENZO(K) FLUORANTHEN (NG/L)			DET'N LIMIT = 1.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL	.	BDL	BDL
BENZO(A) PYRENE (NG/L)			DET'N LIMIT = 5.0		GUIDELINE = 10 (A1)
24 SAMPLES	BDL	BDL	.	BDL	BDL

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
POLYAROMATIC HYDROCARBONS					
BENZO(G,H,I) PERYLEN (NG/L)			DET'N LIMIT = 20.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL		BDL	BDL
DIBENZO(A,H) ANTHRAC (NG/L)			DET'N LIMIT = 10.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL		BDL	BDL
INDENO(1,2,3-C,D) PY (NG/L)			DET'N LIMIT = 20.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL		BDL	BDL
BENZO(B) CHRYSENE (NG/L)			DET'N LIMIT = 2.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL		BDL	BDL
CORONENE (NG/L)			DET'N LIMIT = 10.0		GUIDELINE = N/A
24 SAMPLES	BDL	BDL		BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
SPECIFIC PESTICIDES					
TOXAPHENE (NG/L)			DET'N LIMIT = 500.0		GUIDELINE = 5000 (A1)
8 SAMPLES	BDL	BDL	.	BDL	BDL
2,4,5-T (NG/L)			DET'N LIMIT = 50.0		GUIDELINE = 280000 (A1)
4 SAMPLES	BDL	BDL	.	BDL	BDL
2,4-D (NG/L)			DET'N LIMIT = 100.0		GUIDELINE = 100000 (A1)
4 SAMPLES	BDL	BDL	.	BDL	BDL
2,4-DB (NG/L)			DET'N LIMIT = 200.0		GUIDELINE = N/A
4 SAMPLES	BDL	BDL	.	BDL	BDL
2,4 D PROPIONIC ACID (NG/L)			DET'N LIMIT = 100.0		GUIDELINE = N/A
4 SAMPLES	BDL	BDL	.	BDL	BDL
DICAMBA (NG/L)			DET'N LIMIT = 50.0		GUIDELINE = 120000 (A1)
4 SAMPLES	BDL	BDL	.	BDL	BDL
2,4,5-TP (SILVEX) (NG/L)			DET'N LIMIT = 20.00		GUIDELINE = 10000 (A1)
4 SAMPLES	BDL	BDL	.	BDL	BDL
CARBOFURAN (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = 90000 (A1)
4 SAMPLES	BDL	BDL	.	BDL	BDL
CHLORPROPHAM (CIPC) (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = 350000 (G)
4 SAMPLES	BDL	BDL	.	BDL	BDL
DIALLATE (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = N/A
4 SAMPLES	BDL	BDL	.	BDL	BDL
EPTAM (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = N/A
4 SAMPLES	BDL	BDL	.	BDL	BDL
IPC (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = N/A
4 SAMPLES	BDL	BDL	.	BDL	BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
SPECIFIC PESTICIDES					
PROPOXUR (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = 140000 (D3)
4 SAMPLES	BDL	BDL	.	BDL	BDL
CARBARYL (NG/L)			DET'N LIMIT = 200.0		GUIDELINE = 90000 (A1)
4 SAMPLES	BDL	BDL	.	BDL	BDL
BUTYLATE (NG/L)			DET'N LIMIT = 2000.0		GUIDELINE = 245000 (D3)
4 SAMPLES	BDL	BDL	.	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
VOLATILES					
BENZENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 5 (A1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
TOLUENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 24 (A3)	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	BDL	.	BDL	BDL
1991 AUG	BDL	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	BDL	BDL
1991 OCT	BDL	.100 <T	.	BDL	.200 <T
1991 NOV	.100 <T	.	.	.050 <T	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	BDL	BDL	.	BDL	BDL
1992 OCT	BDL	.	BDL	BDL	BDL
ETHYLBENZENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 2.4 (A3)	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	.050 <T
1991 MAR	BDL	BDL	.	BDL	.100 <T
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	.100 <T	.100 <T	.	.050 <T	.250 <T
1991 JUN	BDL	.100 <T	.	.100 <T	.100 <T
1991 JUL	BDL	.050 <T	.	BDL	BDL
1991 AUG	BDL	BDL	.	.150 <T	.050 <T
1991 SEP	BDL	.050 <T	.	.100 <T	.100 <T
1991 OCT	.100 <T	.100 <T	.	.100 <T	.100 <T
1991 NOV	.100 <T	.	.	.150 <T	.150 <T
1992 JAN	.100 <T	.	.	.100 <T	.
1992 APR	.150 <T	.	.100 <T	.150 <T	.150 <T
1992 JUL	.150 <T	.150 <T	.	.250 <T	.200 <T
1992 OCT	BDL	.	BDL	.050 <T	BDL
P-XYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 300 (A3*)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
VOLATILES					
M-XYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 300 (A3*)	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	BDL	.	BDL	BDL
1991 AUG	BDL	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	BDL	BDL
1991 OCT	BDL	BDL	.	BDL	BDL
1991 NOV	BDL	.	.	BDL	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	BDL	BDL	.	.100 <T	BDL
1992 OCT	BDL	.	BDL	BDL	BDL
O-XYLENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 300 (A3*)	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	BDL	BDL
1991 MAR	BDL	BDL	.	BDL	BDL
1991 APR	BDL	BDL	.	BDL	BDL
1991 MAY	BDL	BDL	.	BDL	BDL
1991 JUN	BDL	BDL	.	BDL	BDL
1991 JUL	BDL	BDL	.	BDL	BDL
1991 AUG	BDL	BDL	.	BDL	BDL
1991 SEP	BDL	BDL	.	BDL	BDL
1991 OCT	BDL	BDL	.	BDL	BDL
1991 NOV	BDL	.	.	BDL	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	BDL	.	BDL	BDL	BDL
1992 JUL	BDL	BDL	.	.050 <T	BDL
1992 OCT	BDL	.	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
VOLATILES					
STYRENE (UG/L) DET'N LIMIT = 0.05 GUIDELINE = 100 (D1)					
1991 JAN	.050 <T	BDL	.	BDL	BDL
1991 FEB	.100 <T	.050 <T	.	BDL	.150 <T
1991 MAR	BDL	.100 <T	.	BDL	.300 <T
1991 APR	BDL	.050 <T	.	BDL	.050 <T
1991 MAY	.150 <T	.100 <T	.	.100 <T	.250 <T
1991 JUN	BDL	.150 <T	.	.150 <T	.150 <T
1991 JUL	BDL	.100 <T	.	BDL	BDL
1991 AUG	BDL	BDL	.	.300 <T	.150 <T
1991 SEP	BDL	.150 <T	.	.150 <T	.200 <T
1991 OCT	.200 <T	.250 <T	.	.150 <T	.200 <T
1991 NOV	.250 <T	.	.	.200 <T	.250 <T
1992 JAN	.150 <T	.	.	.150 <T	.
1992 APR	.300 <T	.	.150 <T	BDL	.300 <T
1992 JUL	.200 <T	.150 <T	.	.250 <T	.250 <T
1992 OCT	BDL	.	.050 <T	.100 <T	BDL
1,1-DICHLOROETHYLENE (UG/L) DET'N LIMIT = 0.100 GUIDELINE = 7 (D1)					
1991 JAN	.200 <T	BDL	.	.200 <T	BDL
1991 FEB	.200 <T	BDL	.	.200 <T	BDL
1991 MAR	.200 <T	BDL	.	.200 <T	BDL
1991 APR	.100 <T	BDL	.	.100 <T	BDL
1991 MAY	.200 <T	BDL	.	.200 <T	BDL
1991 JUN	.200 <T	BDL	.	.200 <T	BDL
1991 JUL	.200 <T	BDL	.	.200 <T	BDL
1991 AUG	.200 <T	BDL	.	.200 <T	BDL
1991 SEP	.200 <T	BDL	.	.200 <T	BDL
1991 OCT	BDL	BDL	.	.200 <T	BDL
1991 NOV	.200 <T	.	.	.200 <T	BDL
1992 JAN	.200 <T	.	.	.200 <T	.
1992 APR	.200 <T	.	BDL	.200 <T	BDL
1992 JUL	.200 <T	BDL	.	.200 <T	BDL
1992 OCT	.200 <T	.	BDL	.200 <T	BDL
METHYLENE CHLORIDE (UG/L) DET'N LIMIT = 0.50 GUIDELINE = 50 (A1)					
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
T12-DICHLOROETHYLENE (UG/L) DET'N LIMIT = 0.10 GUIDELINE = 70 (D1)					
57 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW		WELL P11 RAW		WELL P15 RAW	RESERVOIR ST ANDREW TOWER		RESERVOIR RAHMANS
VOLATILES								
1,1-DICHLOROETHANE (UG/L) DET'N LIMIT = 0.100 GUIDELINE = N/A								
1991 JAN	.700	<T	BDL		.	.600	<T	BDL
1991 FEB	.700	<T	BDL		.	.700	<T	BDL
1991 MAR	.700	<T	BDL		.	.700	<T	BDL
1991 APR	.600	<T	BDL		.	.600	<T	BDL
1991 MAY	.600	<T	BDL		.	.600	<T	BDL
1991 JUN	.600	<T	BDL		.	.600	<T	BDL
1991 JUL	.700	<T	BDL		.	.700	<T	BDL
1991 AUG	.700	<T	BDL		.	.700	<T	BDL
1991 SEP	.600	<T	BDL		.	.600	<T	BDL
1991 OCT	.700	<T	BDL		.	.600	<T	BDL
1991 NOV	.700	<T	.		.	.700	<T	BDL
1992 JAN	.700	<T	.		.	.700	<T	.
1992 APR	.700	<T	.		BDL	.700	<T	BDL
1992 JUL	.700	<T	BDL		.	.700	<T	BDL
1992 OCT	.800	<T	.		BDL	.700	<T	BDL
CHLOROFORM (UG/L) DET'N LIMIT = 0.10 GUIDELINE = 350 (A1+)								
1991 JAN	BDL		BDL		.	.800	<T	BDL
1991 FEB	BDL		BDL		.	.800	<T	BDL
1991 MAR	.100	<T	BDL		.	.900	<T	BDL
1991 APR	.100	<T	BDL		.	.900	<T	BDL
1991 MAY	BDL		BDL		.	1.000		BDL
1991 JUN	BDL		BDL		.	1.600		BDL
1991 JUL	BDL		BDL		.	1.100		BDL
1991 AUG	BDL		BDL		.	1.900		.200 <T
1991 SEP	BDL		BDL		.	1.500		BDL
1991 OCT	BDL		BDL		.	2.800		BDL
1991 NOV	BDL		.		.	5.500		.200 <T
1992 JAN	BDL		.		.	2.300		.
1992 APR	BDL		.		BDL	1.500		BDL
1992 JUL	BDL		BDL		.	2.100		BDL
1992 OCT	-		.		BDL	3.600		BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
VOLATILES					
111,TRICHLOROETHANE (UG/L)		DET'N LIMIT = 0.02		GUIDELINE = 200 (D1)	
1991 JAN	4.320	BDL	.	4.000	BDL
1991 FEB	4.300	BDL	.	4.200	.040 <T
1991 MAR	4.180	BDL	.	4.180	BDL
1991 APR	4.000	.040 <T	.	4.020	BDL
1991 MAY	4.360	BDL	.	4.200	BDL
1991 JUN	4.100	BDL	.	3.900	BDL
1991 JUL	4.020	BDL	.	3.900	BDL
1991 AUG	4.380	BDL	.	4.220	BDL
1991 SEP	4.200	BDL	.	4.100	BDL
1991 OCT	4.600	BDL	.	4.400	BDL
1991 NOV	4.560	.	.	4.340	BDL
1992 JAN	4.620	.	.	4.500	.
1992 APR	4.400	.	BDL	4.200	BDL
1992 JUL	4.380	BDL	.	4.060	BDL
1992 OCT	4.540	.	BDL	4.080	BDL
1,2 DICHLOROETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 5 (A1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
CARBON TETRACHLORIDE (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 5 (A1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
1,2-DICHLOROPROPANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 5 (D1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
TRICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 50 (A1)	
1991 JAN	8.100	BDL	.	7.500	BDL
1991 FEB	8.400	BDL	.	8.300	BDL
1991 MAR	8.000	BDL	.	8.000	BDL
1991 APR	8.500	BDL	.	8.500	BDL
1991 MAY	9.200	BDL	.	9.000	BDL
1991 JUN	7.500	BDL	.	7.100	BDL
1991 JUL	7.000	BDL	.	6.900	BDL
1991 AUG	7.300	BDL	.	7.000	BDL
1991 SEP	7.600	BDL	.	7.200	BDL
1991 OCT	8.100	BDL	.	7.300	BDL
1991 NOV	7.200	.	.	6.800	BDL
1992 JAN	7.200	.	.	7.000	.
1992 APR	7.500	.	BDL	7.200	BDL
1992 JUL	6.800	BDL	.	6.300	BDL
1992 OCT	7.600	.	BDL	6.800	BDL

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER		RESERVOIR RAHMANS
VOLATILES						
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 350 (A1+)		
1991 JAN	BDL	BDL	.	.800		BDL
1991 FEB	BDL	BDL	.	1.150		BDL
1991 MAR	BDL	BDL	.	1.100		BDL
1991 APR	BDL	BDL	.	1.300		BDL
1991 MAY	BDL	BDL	.	1.900		BDL
1991 JUN	BDL	BDL	.	3.100		BDL
1991 JUL	BDL	BDL	.	1.750		BDL
1991 AUG	BDL	BDL	.	3.850		BDL
1991 SEP	BDL	BDL	.	3.600		BDL
1991 OCT	BDL	BDL	.	6.100		BDL
1991 NOV	BDL	.	.	10.000		BDL
1992 JAN	BDL	.	.	5.200		.
1992 APR	BDL	.	BDL	2.400		BDL
1992 JUL	BDL	BDL	.	5.550		BDL
1992 OCT	-	.	BDL	7.450		BDL
112-TRICHLOROETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 0.6 (D4)		
57 SAMPLES	BDL	BDL	BDL	BDL		BDL
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 350 (A1+)		
1991 JAN	BDL	BDL	.	.500	<T	BDL
1991 FEB	BDL	BDL	.	.900	<T	BDL
1991 MAR	BDL	BDL	.	.900	<T	BDL
1991 APR	BDL	BDL	.	1.300		BDL
1991 MAY	BDL	BDL	.	2.000		BDL
1991 JUN	BDL	BDL	.	3.600		BDL
1991 JUL	BDL	BDL	.	1.900		BDL
1991 AUG	BDL	BDL	.	5.000		BDL
1991 SEP	BDL	BDL	.	5.000		BDL
1991 OCT	BDL	BDL	.	7.300		BDL
1991 NOV	BDL	.	.	10.200		BDL
1992 JAN	BDL	.	.	6.200		.
1992 APR	BDL	.	BDL	2.200		BDL
1992 JUL	BDL	BDL	.	7.400		BDL
1992 OCT	-	.	BDL	8.400		BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
VOLATILES					
TETRACHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 65 (A5)	
1991 JAN	.800	BDL	.	.750	BDL
1991 FEB	.750	BDL	.	.750	BDL
1991 MAR	.700	BDL	.	.750	BDL
1991 APR	.700	BDL	.	.650	BDL
1991 MAY	.700	BDL	.	.750	BDL
1991 JUN	.700	BDL	.	.700	BDL
1991 JUL	.700	BDL	.	.650	BDL
1991 AUG	.650	BDL	.	.600	BDL
1991 SEP	.600	BDL	.	.600	BDL
1991 OCT	.900	BDL	.	.800	BDL
1991 NOV	1.000	.	.	1.000	BDL
1992 JAN	.900	.	.	.850	.
1992 APR	1.100	.	BDL	1.100	BDL
1992 JUL	.900	BDL	.	.800	BDL
1992 OCT	1.100	.	BDL	.950	BDL
BROMOFORM (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 350 (A1+)	
1991 JAN	BDL	BDL	.	BDL	BDL
1991 FEB	BDL	BDL	.	.400 <T	BDL
1991 MAR	BDL	BDL	.	.400 <T	BDL
1991 APR	BDL	BDL	.	.600 <T	BDL
1991 MAY	BDL	BDL	.	1.000 <T	BDL
1991 JUN	BDL	BDL	.	1.600 <T	BDL
1991 JUL	BDL	BDL	.	.800 <T	BDL
1991 AUG	BDL	BDL	.	2.200	BDL
1991 SEP	BDL	BDL	.	2.200	BDL
1991 OCT	BDL	BDL	.	2.800	BDL
1991 NOV	BDL	.	.	2.800	BDL
1992 JAN	BDL	.	.	BDL	.
1992 APR	BDL	.	BDL	.600 <T	BDL
1992 JUL	BDL	BDL	.	3.200	BDL
1992 OCT	-	.	BDL	2.200	BDL
1122-TETCHLORDETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 0.17 (04)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
VINYL CHLORIDE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 2 (01)	
14 SAMPLES	BDL	BDL	BDL	BDL	BDL
C12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 70 (01)	
1991 NOV	1.800	.	.	1.700	.
1992 JAN	1.700	.	.	1.650	.
1992 APR	1.700	.	BDL	1.600	BDL
1992 JUL	1.500	BDL	.	1.500	BDL
1992 OCT	1.700	.	BDL	1.500	BDL

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER	RESERVOIR RAHMANS
VOLATILES					
CHLOROBENZENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 1510 (D3)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
1,4-DICHLOROBENZENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 5 (A1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
1,3-DICHLOROBENZENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 3750 (D3)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
1,2-DICHLOROBENZENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 200 (A1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
ETHYLENE DIBROMIDE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 50 (D1)	
57 SAMPLES	BDL	BDL	BDL	BDL	BDL
TOTL TRIHALOMETHANES (UG/L)		DET'N LIMIT = 0.50		GUIDELINE = 350 (A1)	
1991 JAN	BDL	BDL	.	2.150 <T	BDL
1991 FEB	BDL	BDL	.	3.150 <T	BDL
1991 MAR	BDL	BDL	.	3.200 <T	BDL
1991 APR	BDL	BDL	.	4.100 <T	BDL
1991 MAY	BDL	BDL	.	6.000	BDL
1991 JUN	BDL	BDL	.	9.900	BDL
1991 JUL	BDL	BDL	.	5.550	BDL
1991 AUG	BDL	BDL	.	12.950	BDL
1991 SEP	BDL	BDL	.	12.300	BDL
1991 OCT	BDL	BDL	.	19.000	BDL
1991 NOV	BDL	.	.	28.500	BDL
1992 JAN	BDL	.	.	13.700	.
1992 APR	BDL	.	BDL	6.700	BDL
1992 JUL	BDL	BDL	.	18.250	BDL
1992 OCT	-	.	BDL	21.650	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CAMBRIDGE WELL SUPPLY

	WELL G3 RAW	WELL P11 RAW	WELL P15 RAW	RESERVOIR ST ANDREW TOWER.	RESERVOIR RAHMANS
RADIONUCLIDES					
COBALT 60 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = N/A	
2 SAMPLES	BDL	.	.	BDL	.
CESIUM 134 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = N/A	
2 SAMPLES	BDL	.	.	BDL	.
CESIUM 137 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = 50 (A1)	
2 SAMPLES	BDL	.	.	BDL	.
GROSS ALPHA COUNT (BQ/L)		DET'N LIMIT = 0.04		GUIDELINE = 0.55 (D1)	
2 SAMPLES	BDL	.	.	BDL	.
GROSS BETA COUNT (BQ/L)		DET'N LIMIT = 0.04		GUIDELINE = N/A	
1992 JAN	.090	.	.	.070	.
TRITIUM (BQ/L)		DET'N LIMIT = 7.00		GUIDELINE = 40000 (A1)	
1992 JAN	BDL	.	.	10.000	.
IODINE 131 (BQ/L)		DET'N LIMIT = 0.70		GUIDELINE = 10 (A1)	
2 SAMPLES	BDL	.	.	BDL	.

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
BACTERIOLOGICAL				
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0	(A1)
STANDARD PLATE COUNT MEMBRANE FILT.	CT/ML	0	500/ML	(A3)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A	
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100ML	(A1)
CHEMISTRY (FLD)				
FIELD COMBINED CHLORINE RESIDUAL	MG/L	0	N/A	
FIELD TOTAL CHLORINE RESIDUAL	MG/L	0	N/A	
FIELD FREE CHLORINE RESIDUAL	MG/L	0	N/A	
FIELD PH	DMNSLESS	N/A	6.5-8.5	(A4)
FIELD TEMPERATURE	DEG.C	N/A	15.0	(A3)
FIELD TURBIDITY	FTU	N/A	1.0	(A1)
CHEMISTRY (LAB)				
ALKALINITY	MG/L	0.20	30-500	(A4)
AMMONIUM TOTAL	MG/L	0.002	0.05	(F2)
CALCIUM	MG/L	0.20	100.0	(F2)
CHLORIDE	MG/L	0.20	250.0	(A3)
COLOUR	TCU	0.50	5.0	(A3)
CONDUCTIVITY	UMHO/CM	1.00	400.0	(F2)
CYANIDE	MG/L	0.001	0.2	(A1)
DISSOLVED ORGANIC CARBON	MG/L	0.10	5.0	(A3)
FLUORIDE	MG/L	0.01	1.5*	(A1)
HARDNESS	MG/L	0.50	80-100	(A4)
IONCAL	DMNSLESS	N/A	N/A	
LANGELIERS INDEX	DMNSLESS	N/A	N/A	
MAGNESIUM	MG/L	0.10	30.0	(F2)
NITRATES (TOTAL)	MG/L	0.005	10.0	(A1)
NITRITE	MG/L	0.001	1.0	(A1)
NITROGEN TOTAL KJELDAHL	MG/L	0.02	N/A	
PH	DMNSLESS	N/A	6.5-8.5	(A4)
PHOSPHORUS FIL REACT	MG/L	0.0005	N/A	
PHOSPHORUS TOTAL	MG/L	0.002	0.4	(F2)
POTASSIUM	MG/L	0.010	10.0	(F2)
RESIDUE FILTRATE (CALCULATED TDS)	MG/L	N/A	500.0	(A3)
SODIUM	MG/L	0.20	200.0	(A4)
SULPHATE	MG/L	0.20	500.0	(A4)
TURBIDITY	FTU	0.05	1.0	(A1)

* The Maximum Acceptable Concentration (MAC) for <u>naturally occurring fluoride</u> in drinking water is 2.4 mg/L.

CHLOROAROMATICS				
1,2,3-TRICHLOROBENZENE	NG/L	5.0	N/A	
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.0	N/A	
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.0	N/A	
1,2,4-TRICHLOROBENZENE	NG/L	5.0	10000	(I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.0	38000	(D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.0	N/A	
2,3,6-TRICHLOROTOLUENE	NG/L	5.0	N/A	
2,4,5-TRICHLOROTOLUENE	NG/L	5.0	N/A	
2,6A-TRICHLOROTOLUENE	NG/L	5.0	N/A	
HEXACHLOROBENZENE (HCB)	NG/L	1.0	10	(C1)
HEXACHLOROBUTADIENE	NG/L	1.0	450	(D4)
HEXACHLOROETHANE	NG/L	1.0	1900	(D4)
OCTACHLOROSTYRENE	NG/L	1.0	N/A	
PENTACHLOROBENZENE	NG/L	1.0	74000	(D4)
CHLOROPHENOLS				
2,3,4-TRICHLOROPHENOL	NG/L	100.0	N/A	
2,3,4,5-TETRACHLOROPHENOL	NG/L	20.0	N/A	
2,3,5,6-TETRACHLOROPHENOL	NG/L	10.0	N/A	

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
2,4,5-TRICHLOROPHENOL	NG/L	100.0	2600000	(D4)
2,4,6-TRICHLOROPHENOL	NG/L	20.0	5000	(A1)
PENTACHLOROPHENOL	NG/L	10.0	60000	(A1)
METALS				
ALUMINUM	UG/L	0.10	100	(A4)
ANTIMONY	UG/L	0.05	146	(D4)
ARSENIC	UG/L	0.10	25	(A1)
BARIUM	UG/L	0.05	1000	(A2)
BERYLLIUM	UG/L	0.05	6800	(D4)
BORON	UG/L	2.00	5000	(A1)
CADMIUM	UG/L	0.05	5	(A1)
CHROMIUM	UG/L	0.50	50	(A1)
COBALT	UG/L	0.02	N/A	
COPPER	UG/L	0.50	1000	(A3)
IRON	UG/L	6.00	300	(A3)
LEAD	UG/L	0.05	10	(A1)
MANGANESE	UG/L	0.05	50	(A3)
MERCURY	UG/L	0.02	1	(A1)
MOLYBDENUM	UG/L	0.05	N/A	
NICKEL	UG/L	0.20	350	(D3)
SELENIUM	UG/L	1.00	10	(A1)
SILVER	UG/L	0.05	N/A	
STRONTIUM	UG/L	0.10	N/A	
THALLIUM	UG/L	0.05	13	(D4)
TITANIUM	UG/L	0.50	N/A	
URANIUM	UG/L	0.05	100	(A1)
VANADIUM	UG/L	0.05	N/A	
ZINC	UG/L	0.20	5000	(A3)
POLYNUCLEAR AROMATIC HYDROCARBONS				
ANTHRACENE	NG/L	1.0	N/A	
BENZO(A) ANTHRACENE	NG/L	20.0	N/A	
BENZO(A) PYRENE	NG/L	5.0	10	(A1)
BENZO(B) CHRYSENE	NG/L	2.0	N/A	
BENZO(B) FLUORANTHENE	NG/L	10.0	N/A	
BENZO(E) PYRENE	NG/L	50.0	N/A	
BENZO(G,H,I) PERYLENE	NG/L	20.0	N/A	
BENZO(K) FLUORANTHENE	NG/L	1.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
CORONENE	NG/L	10.0	N/A	
DIBENZO(A,H) ANTHRACENE	NG/L	10.0	N/A	
DIMETHYL BENZO(A) ANTHRACENE	NG/L	5.0	N/A	
FLUORANTHENE	NG/L	20.0	42000	(D4)
INDENO(1,2,3-C,D) PYRENE	NG/L	20.0	N/A	
PERYLENE	NG/L	10.0	N/A	
PHENANTHRENE	NG/L	10.0	N/A	
PYRENE	NG/L	20.0	N/A	
PESTICIDES & PCB				
ALACHLOR (LASSO)	NG/L	500.0	5000	(A2)
ALDRIN	NG/L	1.0	700	(A1)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700	(G)
ALPHA CHLORDANE	NG/L	2.0	7000	(A1)
AMETRINE	NG/L	50.0	300000	(D3)
ATRATONE	NG/L	50.0	N/A	
ATRAZINE	NG/L	50.0	60000	(A2)
DESETHYL ATRAZINE	NG/L	200.0	60000	(A2)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300	(G)
CYANAZINE (BLADEX)	NG/L	100.0	10000	(A2)
DIELDRIN	NG/L	2.0	700	(A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000	(D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	5.0	74000	(D4)
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	5.0	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
ENDRIN	NG/L	5.0	1600	(D3)
GAMMA CHLORDANE	NG/L	2.0	7000	(A1)
HEPTACHLOR	NG/L	1.0	3000	(A1)
HEPTACHLOR EPOXIDE	NG/L	1.0	3000	(A1)
HEXACHLOROCYCLOPENTADIENE	NG/L	5.0	206000	(D4)
LINDANE (GAMMA BHC)	NG/L	1.0	4000	(A1)
METHOXYCHLOR	NG/L	5.0	900000	(A1)
METOLACHLOR	NG/L	500.0	50000	(A2)
METRIBUZIN (SENCOR)	NG/L	100.0	80000	(A1)
MIREX	NG/L	5.0	N/A	
P,P-DDD	NG/L	5.0	30000	(A1)
O,P-DDT	NG/L	5.0	30000	(A1)
P,P-DDT	NG/L	5.0	30000	(A1)
P,P-DDE	NG/L	1.0	30000	(A1)
OXYCHLORDANE	NG/L	2.0	N/A	
PCB	NG/L	20.0	3000	(A2)
PROMETONE	NG/L	50.0	52500	(D3)
PROMETRYNE	NG/L	50.0	1000	(A2)
PROPAZINE	NG/L	50.0	700000	(D3)
SIMAZINE	NG/L	50.0	10000	(A2)
DESETHYL SIMAZINE	NG/L	200.0	10000	(A2)
TOXAPHENE	NG/L	500.0	5000	(A1)
PHENOLICS				
PHENOLICS (UNFILTERED REACTIVE)	UG/L	0.2	N/A	
SPECIFIC PESTICIDES				
2,4 D PROPIONIC ACID	NG/L	100.0	N/A	
2,4,5-TRICHLOROPHENOXY ACETIC ACID	NG/L	50.0	280000	(A1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.0	100000	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID (2,4-DB)	NG/L	200.0	N/A	
2,4,5-TP (SILVEX)	NG/L	20.0	10000	(A1)
BUTYLATE (SUTAN)	NG/L	2000.0	245000	(D3)
CARBARYL (SEVIN)	NG/L	200.0	90000	(A1)
CARBOFURAN	NG/L	2000.0	90000	(A1)
CHLORPROPHAM (CIPC)	NG/L	2000.0	350000	(G)
CHLORPYRIFOS (DURSBAN)	NG/L	20.0	N/A	
DIALLATE	NG/L	2000.0	N/A	
DIAZINON	NG/L	20.0	20000	(A1)
DICAMBA	NG/L	50.0	120000	(A1)
DICHLOROVOS	NG/L	20.0	N/A	
EPTAM	NG/L	2000.0	N/A	
ETHION	NG/L	20.0	35000	(G)
IPC	NG/L	2000.0	N/A	
MALATHION	NG/L	20.0	190000	(A1)
METHYL PARATHION	NG/L	50.0	9000	(D3)
METHYLTRITHION	NG/L	20.0	N/A	
MEVINPHOS	NG/L	20.0	N/A	
PARATHION	NG/L	20.0	50000	(A1)
PHORATE (THIMET)	NG/L	20.0	2000	(A2)
PICHLORAM	NG/L	100.0	190000	(A2)
PROPOXUR (BAYGON)	NG/L	2000.0	140000	(D3)
RELDAN	NG/L	20.0	N/A	
RONNEL	NG/L	20.0	N/A	
VOLATILES				
1,1-DICHLOROETHANE	UG/L	0.10	N/A	
1,1-DICHLOROETHYLENE	UG/L	0.10	7	(D1)
1,2-DICHLOROBENZENE	UG/L	0.05	200	(A1)
1,2-DICHLOROETHANE	UG/L	0.05	5	(A1)
1,2-DICHLOROPROPANE	UG/L	0.05	5	(D1)
1,3-DICHLOROBENZENE	UG/L	0.10	3750	(D3)
1,4-DICHLOROBENZENE	UG/L	0.10	5	(A1)
1,1,1-TRICHLOROETHANE	UG/L	0.02	200	(D1)
1,1,2-TRICHLOROETHANE	UG/L	0.05	0.6	(D4)
1,1,2,2-TETRACHLOROETHANE	UG/L	0.05	0.17	(D4)

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
BENZENE	UG/L	0.05	5	(A1)
BROMOFORM	UG/L	0.20	350	(A1+)
CARBON TETRACHLORIDE	UG/L	0.20	5	(A1)
CHLOROBENZENE	UG/L	0.10	1510	(D3)
CHLORODIBROMOMETHANE	UG/L	0.10	350	(A1+)
CHLOROFORM	UG/L	0.10	350	(A1+)
CIS 1,2-DICHLOROETHYLENE	UG/L	0.10	70	(D1)
DICHLOROBROMOMETHANE	UG/L	0.05	350	(A1+)
ETHYLENE DIBROMIDE	UG/L	0.05	50	(D1)
ETHYLBENZENE	UG/L	0.05	2.4	(A3)
M-XYLENE	UG/L	0.10	300	(A3*)
METHYLENE CHLORIDE	UG/L	0.50	50	(A1)
O-XYLENE	UG/L	0.05	300	(A3*)
P-XYLENE	UG/L	0.10	300	(A3*)
STYRENE	UG/L	0.05	100	(D1)
TETRACHLOROETHYLENE	UG/L	0.05	65	(A5)
TRANS 1,2-DICHLOROETHYLENE	UG/L	0.10	70	(D1)
TOLUENE	UG/L	0.05	24	(A3)
TOTAL TRIHALOMETHANES	UG/L	0.50	350	(A1)
TRICHLOROETHYLENE	UG/L	0.10	50	(A1)
VINYL CHLORIDE	UG/L	0.10	2	(D1)
RADIONUCLIDES				
TRITIUM	BQ/L	7.0	40000	(A1)
GROSS ALPHA COUNT	BQ/L	0.04	0.55#	(D1)
GROSS BETA COUNT	BQ/L	0.04	N/A	
COBALT 60	BQ/L	0.70	N/A	
CESIUM 134	BQ/L	0.70	N/A	
CESIUM 137	BQ/L	0.70	50	(A1)
IODINE 131	BQ/L	0.70	10	(A1)

Equal to 15.0 Picocuries/litre

Appendix A

DRINKING WATER SURVEILLANCE PROGRAM
PROGRAM DESCRIPTION

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality;
- a flagging mechanism for guideline exceedance;
- a definition of contaminant levels and trends;
- a comprehensive background for remedial action;
- a framework for assessment of new contaminants; and
- an indication of treatment efficiency of plant processes.

PROGRAM

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. In 1992, 109 systems were being monitored. Water supply locations have been prioritized for surveillance based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit.

A major goal of the program is to collect valid water quality data in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analyzed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling, in order to acquire complete plant process and distribution system details and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of raw (ambient water) and treated water at the treatment plant and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled. Sampling is carried out by operational personnel who have been trained in applicable procedures.

Comprehensive standardized procedures and field test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". Most laboratory analyses are carried out by the Ministry of Environment and Energy (MOEE), Laboratory Services Branch. Radionuclides are analyzed by the Ministry of Labour.

DATA REPORTING MECHANISM

When the analytical results are transferred from the MOEE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOEE District Officer, the appropriate operational staff and are also retained by the DWSP unit.

PROGRAM INPUTS AND OUTPUTS

There are four major inputs and four major outputs in the program.

Program Input - Plant and Distribution System Description

The system description includes plant specific non-analytical information acquired through a questionnaire and an initial plant visit. During the initial assessment of the plant and distribution system, questionnaire content is verified and missing information added. It is intended that all data be kept current with scheduled annual updates.

The Plant and Distribution System Description consists of the following seven components:

1. PROCESS COMPONENT INVENTORY
All physical and chemical processes to which the water is subjected, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. TREATMENT CHEMICALS
Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. Chemical dosages applied on the day of sampling are recorded in DWSP.

3. PROCESS CONTROL MEASUREMENTS
Documentation of in-plant monitoring of process parameters (eg. turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. Except for the recorded Field Data, in-plant monitoring results are not retained in DWSP but are retained by the water treatment plant personnel.

4. DESIGN FLOW AND RETENTION TIME
Hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. Maximum, minimum and average flow, as well as a record of the flow rate on the day of sampling, are recorded in DWSP.

5. DISTRIBUTION SYSTEM DESCRIPTION
This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. SAMPLING SYSTEM

Each plant is assessed for its adequacy in terms of the sampling of bacteriological, organic and inorganic parameters. Prime considerations in the assessment and design of the sampling system are:

i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;

ii/ the water being sampled is not being modified by the sampling system;

iii/ the sample tap must be in a clean area of the plant, preferably a lab area; and

iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap); pump characteristics (model, type, capacity); and flow rate.

7. PERSONNEL

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate MOEE personnel associated with the plant.

Program Input - Field Data

The second major input to DWSP is field data. Field data is collected at the plant and from the distribution system sites on the day of sampling. Field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling, as well as, monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analyzed according to standardized DWSP protocols to allow for interplant comparison.

Program Input - Laboratory Analytical Data

The third major input to DWSP is Laboratory Analytical Data. Samples gathered from the raw, treated and distribution sampling sites are analyzed for the presence of approximately 180 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. Parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments, parameters may be measured in a "scan" producing some results for parameters that are not on the DWSP priority list, but which may be of interest. The majority of parameters are measured on a routine basis. Those that are technically more difficult and/or costly to analyze, however, are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change, notation will be made and comparison data documented.

Program Input - Parameter Reference Information

The fourth major input to DWSP is Parameter Reference Information. This is a catalogue of information for each substance analyzed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database. An example is shown in figure 1.

Program output - Query

All DWSP information is easily accessed through the Query function, therefore, anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOEE offices is being developed by the DWSP group.

Program Output - Action Alerts

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the Ontario Drinking Water Objectives publication. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective, an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of the confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedances at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, guidelines/limits from other agencies are used. The Parameter Listing System, published by MOEE (ISBN 0-7729-4461-X), catalogues and keeps current guidelines for 650 parameters from agencies throughout the world. If these guidelines are exceeded, the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

Program Output - Report Generation

Custom reports can be generated from DWSP to meet MOEE Regional needs and to respond to public requests.

Program Output - Annual Reports

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG.1

PARAMETER REFERENCE INFORMATION

NAME:	BENZENE
CAS#:	71-43-2
MOLECULAR FORMULAE:	C_6H_6
DETECTION LIMIT:	(FOR METHOD POCODO) 0.05 µg/L
SYNONYMS:	BENZOL; BENZOLE; COAL NAPHTHA; CARBON OIL (27) CYCLOHEXATRIENE (41)
CHARACTERISTICS:	COLOURLESS TO LIGHT-YELLOW, MOBILE, NONPOLAR LIQUID, OF HIGHLY REFRACTIVE NATURE, AROMATIC ODOUR; VAPOURS BURN WITH SMOKING FLAME (30)
PROPERTIES:	SOLUBILITY IN WATER: 1780-1800 mg/L AT 25C (41) THRESHOLD ODOUR: 0.5 - 10 PPM IN WATER THRESHOLD TASTE: 0.5 mg/L IN WATER (39) ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING ORGANISMS AND APPEARS TO ACCUMULATE IN ANIMAL TISSUES THAT EXHIBIT A HIGH LIPID CONTENT OR REPRESENT MAJOR METABOLIC SITES, SUCH AS LIVER OR BRAIN; SMALL QUANTITIES EVAPORATE FROM SOILS OR ARE DEGRADED RATHER QUICKLY (80)
SOURCES:	COMMERCIAL: PETROLEUM REFINING; SOLVENT RECOVERY; COAL TAR DISTILLATION (39); FOOD PROCESSING AND TANNING INDUSTRIES; COMBUSTION OF CAR EXHAUST. ENVIRONMENTAL: POSSIBLE SOURCE IS RUNOFF.
USES:	DETERGENTS; NYLON; INTERMEDIATE IN PRODUCTION OF OTHER COMPOUNDS, SUCH AS PESTICIDES; SOLVENT FOR EXTRACTION AND RECTIFICATION IN RUBBER INDUSTRY; DEGREASING AND CLEANSING AGENT; GASOLINE.
REMOVAL:	THE FOLLOWING PROCESSES HAVE BEEN SUCCESSFUL IN REMOVING BENZENE FROM WASTEWATER: GAC ADSORPTION, PRECIPITATION WITH ALUM AND SUBSEQUENT REMOVAL VIA SEDIMENTATION, COAGULATION AND FLOCCULATION, SOLVENT EXTRACTION, OXIDATION
ADDITIONAL PROPERTIES:	MOLECULAR WEIGHT: 78.12 MELTING POINT: 5.5°C (27) BOILING POINT: 80.1°C (27) SPECIFIC GRAVITY: 0.8790 AT 20°C (27) VAPOUR PRESSURE: 100 MM AT 26.1°C (27) HENRY'S LAW CONSTANT: 0.00555 ATM-M3/MOLE (41) LOG OCT./WATER PARTITON COEFFICIENT: 1.95 TO 2.13 (39) CARBON ADSORPTION: K=1.0; 1/N=1.6; R=0.97; PH=5.3 (41) SEDIMENT/WATER PARTITION COEFFICIENT: NO DATA

DWSP SAMPLING GUIDELINE

i) Raw and Treated at Plant

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-220 mL plastic bottle with white seal on cap -do not rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (**Caution:** HNO_3 is corrosive)
Volatiles (duplicates) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do not rinse bottle -fill bottle completely without bubbles
Organics (OWOC),(OWTRI)	-1 L amber glass bottle per scan -do not rinse bottle -fill to 2 cm from top
Specific Pesticides (OWCP),(PEOP),(PECAR)	-as per Organics -three extra bottles must be filled
Polyaromatic hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do not rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate
Cyanide (Treated only)	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops sodium hydroxide (NaOH) (**Caution:** NaOH is corrosive)
Mercury	-250 mL glass bottle -rinse bottle and cap three times -fill to top of label -add 20 drops each nitric acid (HNO_3) and potassium dichromate ($K_2Cr_2O_7$) (**Caution:** HNO_3&$K_2Cr_2O_7$ are corrosive)

Phenols	-250 mL glass bottle -do not rinse bottle, preservative has been added -fill to top of label
Radionuclides (as scheduled)	-4 L plastic jug -do not rinse, carrier added -fill to 5 cm from top
Organic Characterization (GC/MS - once per year) (PBVOL),(PBEXT)	-1 L amber glass bottle; instructions as per organic -250 mL glass bottle -do not rinse bottle -fill completely without bubbles

Steps:

1. Let sampling water tap run for an adequate time to clear the sample line.
2. Record time of day on submission sheet.
3. Record temperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.
6. No smoking in area of sample location.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (**Caution:** HNO_3 is corrosive)

Steps:

1. Record time of day on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.

5. Fill general chemistry and metals bottles.

6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) **Distribution Samples (free flow)**

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-250 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid HNO_3 (**Caution:** HNO_3 is corrosive)
Volatiles (duplicate) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle, preservative has been added -fill bottle completely without bubbles
Organics (OWOC)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Polyaromatic Hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate

<u>Steps:</u>

1. Record time of day on submission sheet.

2. Let cold water flow for five minutes.

3. Record temperature on submission sheet.

4. Fill all bottles as per instructions.

5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.